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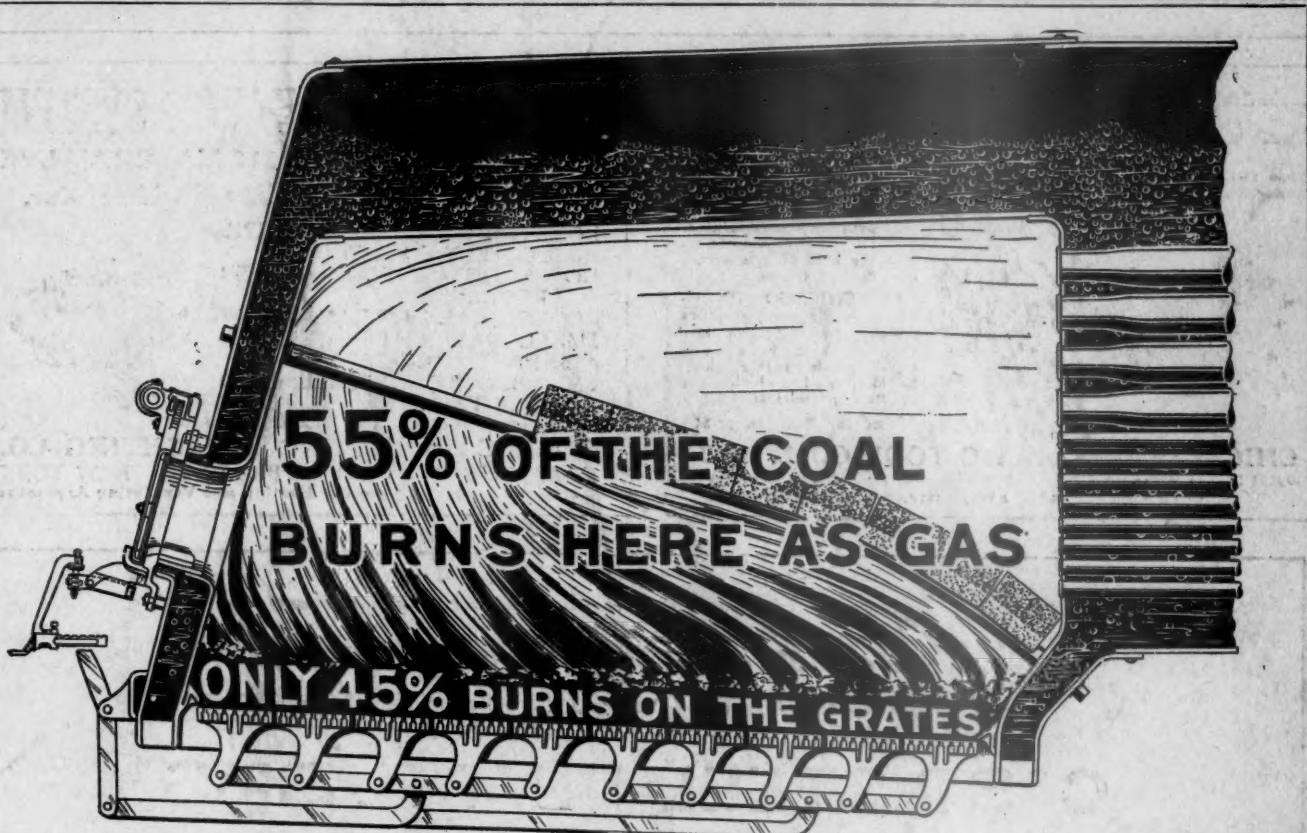
SIXTY-THIRD YEAR

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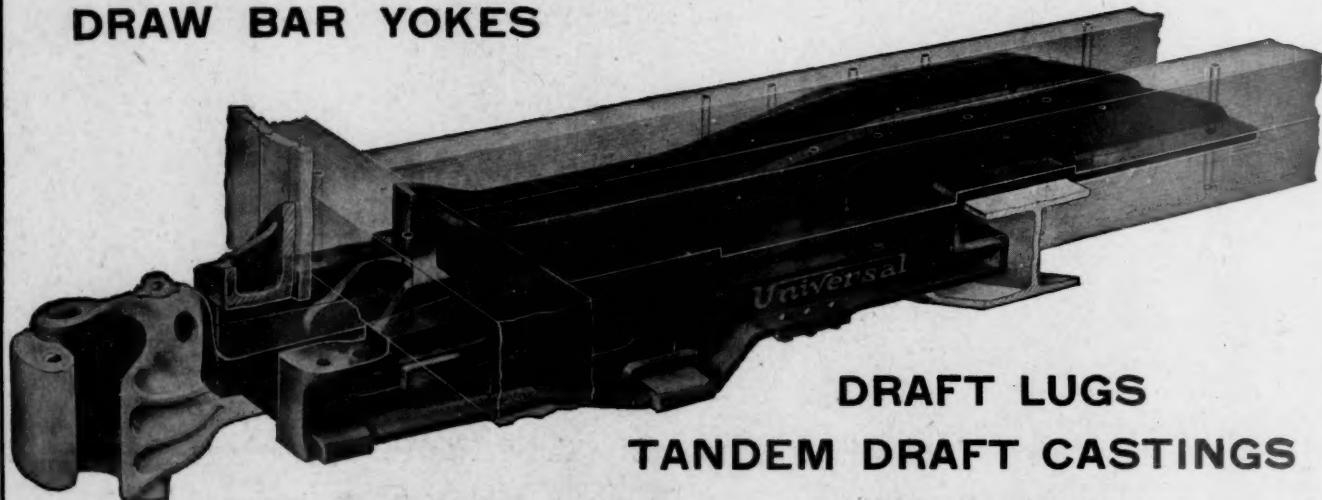
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Vol. 65

December 6, 1918

No. 23



German Ammunition Train Blown Up. French Official Photograph from Underwood & Underwood, N. Y.

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WE GUARANTEE, that of this issue, 7,850 copies were printed, that of these 7,850 copies, 7,257 were mailed to regular paid subscribers, 65 were provided for counter and news companies' sales, 295 were mailed to advertisers, 135 were mailed to employees and correspondents, and 98 were provided for new subscriptions, samples, copies lost in the mails and office use; that the total copies printed this year to date were 423,542, an average of 8,644 copies a week.

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EDITORIAL

Railway Age

EDITORIAL

Important for Subscribers

In the interest of the conservation of paper, the RAILWAY AGE will print at the end of the present volume only a sufficient number of indexes to meet direct requests from its subscribers. Those desiring indexes should, therefore, immediately advise the New York office, 2201 Woolworth Building.

In the collision at Birdsell, Nebraska, September 10 last, killing eleven persons, the railroad management has a

A Novel Collision Record

half dozen kinds of well-known bad practices to account for, and in addition one kind that has never before appeared in the records—the mistake of a work-train engineman who carried a watch

fitted with two hour-hands and who thought he was working under Mountain time when in reality he was in the section where Central time was the standard. To the "man in the street" the use of such a watch would seem to invite disaster; and the statement in the report, which is abstracted in another column, that enginemen had made such mistakes (though without causing any collision) several times before, would seem to be sufficient to convert railroad officers to the same view. And yet this practice seems to be one of long standing! The conductor of this work-train was jointly responsible; he simply "forgot"; the passenger engineman seems to have been dreaming (when he could have avoided the collision by keeping a good lookout); his fireman had the stock excuse—engaged in shoveling coal—and three or four other men combined ignorance, dullness and inexperience. Columns might be filled with discussion of ways of improving the discipline and the training so as to forestall the disasters which result from these varied kinds of negligence. The one comprehensive remedy for such collisions is the block system, for the non-use of which there is no excuse. Further, Mr. Borland's report indicates that in this case the manual block system was ostensibly in use, but was suspended under slipshod conditions.

The heart of the resolutions adopted Wednesday by representatives of 90 per cent of the railroad mileage of the United

Railway Executives' Committee

States lies in the definition of desirable government regulation as that which "* * * will provide uniformity of regulation in essential matters, insure business treatment of the

vast interests involved, attract adequate capital and assure the commercial, manufacturing and agricultural interests of the country transportation facilities which shall keep pace with their growing interests and deal equitably with questions affecting wages and the working conditions of railroad employees." With the exception of Newman Erb, who is a buyer and seller of more or less financially crippled railroads, the meeting was unanimous in its stand against government ownership. It is obvious, however, that the resolutions adopted are a statement of underlying, fundamental principles only. These principles might be made effective

in various ways and probably even members of the permanent committee differ as to which of these ways is most desirable, most feasible and most practicable. The establishment of credit, especially, is one which must be viewed by executives of different roads in a different light. It is generally conceded by all that a road like the New York Central ought to finance its needs of the next few years by the issue of stock rather than bonds, but the practical question then arises as to whether the company could sell stock if it had only its individual credit to rely on. Roads like the Union Pacific face no such serious problem. The present railroad situation is a crisis in the economic affairs of this country and there should be the closest co-operation between the railway executives whose lives have been spent building up this great railroad system, the present Railroad Administration, with its experience of a year's unified and regional operation, and Congress which, according to President Wilson's solemn warning, must tackle the required legislation.

Prior to 1917, maintenance of equipment expenses on the majority of the larger roads varied from 10 to 15 per cent of total operating revenues. The

Ratio of Equipment Repair Expenses to total operating revenues varied from 9 to 12 per cent. The ratio of transportation expenses to total operating

revenues varied from 25 to 35 per cent. It has been a rather interesting fact that especially in the last year, the ratio of maintenance of equipment expenses has increased much more than the ratio of maintenance of way expenses. This is because rail renewal was next to impossible and because of the scarcity of labor, on the one hand, and, on the other, the high price of maintenance of equipment material and the necessity of buying and applying it, regardless of material and labor costs. In September, the maintenance of equipment figures look peculiarly out of line. For instance, the Atchison, Topeka & Santa Fe spent \$5,923,000 on maintenance of equipment as against \$5,398,000 on transportation, and \$1,865,000 on maintenance of way; but this road was one of a few exceptions. The Chicago & North Western spent \$2,967,000 on equipment, \$5,328,000 on transportation and \$1,795,000 on maintenance of way; the New York Central \$5,575,000 on maintenance of equipment, \$10,154,000 on transportation, \$3,207,000 on maintenance of way, and so on. The point about the September figures is that, in many instances, the roads charged into this month a part or all of the retroactive increases in the employees' wages in the mechanical department. The fact is that maintenance of equipment expenses have been running up abnormally as compared with maintenance of way expenses and, in many instances, even as compared with transportation expenses, and it might be well worth while for any general manager to make an analysis of his own company's expenditures in order to determine in his own mind whether maintenance of way was not now way below what it ought to be and will be of necessity within a year or so, and whether the expenditures for heavier equipment made on the justification of holding down transportation expenses did not entail a maintenance charge which would

eat up the savings which should have resulted from lower transportation expenses.

Recovering Lost Ground

NOw THAT THE WAR IS OVER, the Railroad Administration is confronted with the problem of restoring the railroads to the condition they were in when taken over on December 28, 1917. Conditions have been such during the past season that it has been neither possible nor advisable to do more than the most essential work, and that which could be discontinued safely has been put off in order to concentrate all of the labor and materials possible on those factors contributing most directly to the winning of the war. With the passing of this crisis the situation has changed and the Railroad Administration can now properly consider those suggestions necessary to the rehabilitation of the roads.

The law under which the properties of the carriers were taken over stipulate that "every such agreement shall also contain adequate and appropriate provisions for the maintenance, repair, renewals and depreciation of property, for the creation of any reserves or reserve funds found necessary in connection therewith, and for such accounting and adjustments of charges and payments, both during and at the end of federal control, as may be requisite in order that the property of each carrier may be returned to it in substantially as good repair and in substantially as complete equipment as it was in at the beginning of federal control."

The existence of this accumulation of improvement and maintenance work and recognition that it must be made up directly or by cash payments, has led to the suggestion that the Railroad Administration place large orders for equipment and other materials now to aid the industries in tiding over the transition from wartime to peace conditions. Partially as an answer to these suggestions, the director general issued a statement a few days ago to the effect that the expenditures for equipment and for improvements chargeable to capital account (and therefore to be paid for by the corporations), authorized but not yet completed on the properties under federal control, together with the additions and betterments, which it is estimated must be authorized for next year, will constitute a program of capital expenditures for 1919 estimated to amount to \$909,000,000. This refers only to additions and betterments work chargeable to capital account and indicates the great need for improved facilities.

There is, in addition, a very large amount of work to be done not included in the above figures. This includes work chargeable to operating rather than capital account. It is work of this character to which particular reference is made in the section of the law quoted above, since this is current repair work. We have referred previously in these columns to the fact that the rail renewals this year are only about 40 per cent of the normal amount. The renewal of ties has been almost equally curtailed. These are largely typical of conditions in the entire maintenance-of-way field.

It is true that the cost of any work done now will be considerably greater than normal. This increased cost accounts in large measure for the large total of work authorized, chargeable to capital account, as noted above.

No one should advocate that either the government or the private owners of railways should spend money unnecessarily during times of high prices for labor and for material. However, the government took over the railways as a war measure in times of excessive costs of operation and it owes it to the owners of the properties to maintain them in as nearly normal condition as possible from year to year, and in times of high and low cost alike.

It is fortunately true that the physical properties of a railroad can be under-maintained for certain periods without

showing the full adverse effects. However, this cannot continue indefinitely or for any considerable period. Furthermore, when the effects do become evident, the deterioration proceeds so rapidly that it requires far more work and materials to return the properties to their original condition, than it would have done to maintain them in that condition from year to year. It is to be hoped and expected that the Railroad Administration will proceed with the development of plans to overcome the deterioration which has taken place this year and bring the properties back as soon as possible to the condition in which they were a year ago.

President Wilson on the Railroad Question

PRESIDENT WILSON'S DISCUSSION of the railroad problem, in his address before Congress on Monday, was not such a strong pronouncement as is usually expected of him, but the opinions he expressed are eminently sound and fair. The President rather surprised some of his friends who had expected him to advocate a plan of government ownership of railroads, as well as some others who feared that he was becoming imbued with socialistic tendencies, when he announced that it will "presently" become his duty to relinquish control of the railroads, even before the expiration of the statutory period of 21 months after the proclamation of peace, "unless there should appear some clear prospect in the mean time of a legislative solution." He admitted frankly that he had no answer ready to the question of the policy to be adopted towards the railroads permanently but he was perfectly clear as to what should be done in the near future unless some acceptable plan is speedily forthcoming.

"The only thing that is perfectly clear to me," he said, "is that it is not fair either to the public or to the owners of the railroads to leave the question unanswered." This means that he is not in accord with the idea of taking advantage of a temporary control of the railroads, undertaken to serve a purpose that now has been attained, to retain control of the roads for the purpose of working out an experiment in the hope that it would prove so popular that the statutory time limit would eventually be removed. It may perhaps be suggested that the President might have been more definite in his ideas as to a permanent railroad policy if the country had not recently elected a Republican Congress, but his language certainly does not display any enthusiasm for government ownership. He merely mentions it in passing as a possibility, as the opposite extreme to going back to the old conditions of private management, unrestricted competition and "multiform regulation," which he says would be "a disservice alike to the country and to the owners of the railroads."

Some significance will undoubtedly be attached to the particularity with which he describes a third possibility, "an intermediate course of modified private control, under a more unified and affirmative public regulation and under such alterations of the law as will permit wasteful competition to be avoided and a considerable degree of unification of administration to be effected, as for example, by regional corporations under which the railways of definable areas would be in effect combined in single systems." This is in accord in many respects with suggestions that have recently been made by President Ripley of the Atchison, Topeka & Santa Fe, Chairman Daniels of the Interstate Commerce Commission, and others, who, while opposed to government ownership, wish to preserve under a plan of private management some of the advantages which have been demonstrated under the unified control of the government.

The president also stated more definitely some of the ideas which railroad men have urged for several years and which

formed an important feature of their presentation before the Newlands Committee last year. The one conclusion that he was ready to state with confidence was that "it would be a disservice alike to the country and to the owners of the railroads to return to the old conditions unmodified. Those," he said, "are conditions of restraint without development. There is nothing affirmative or helpful about them." This language does not refer to any shortcomings on the part of the railroad managers. It does not attribute to them the responsibility for what many are pleased to call their "break-down" last winter. What the President had in mind had been definitely stated earlier in his message when he said: "Exceptional circumstances and exceptional methods of administration were not needed to convince us that the railroads were not equal to the immense tasks of transportation imposed upon them by the rapid and continuous development of the industries of the country. We knew that already. And we knew that they were unequal to it partly because their full co-operation was rendered impossible by law and their competition made obligatory, so that it has been impossible to assign to them severally the traffic which could best be carried by their respective lines in the interest of expedition and national economy."

Some new element of policy he declared to be absolutely necessary, for the service of the public, for the release of credit to those who are administering the railways, and for the protection of their security holders, and he hoped that Congress would have an impartial study of the whole problem instituted at once and prosecuted as rapidly as possible.

Congress can find a large amount of useful material on this subject in the records of the Newlands joint committee on interstate commerce, which, if brought up to date and supplemented with some of the experience of the past year, might prove an excellent foundation for early action, but it will probably be found desirable to appoint a new committee.

Politician or Economist?

THESE ARE NOT A FEW who have studied President Wilson's actions critically who feel that first and foremost he is inclined to approach and decide problems on the basis of politics rather than from the viewpoint of an economist. It is not unnatural, therefore, that these men should suggest that it is for purely political reasons that President Wilson has turned the railroad problem over to Congress without any specific recommendations. Only a few weeks ago the President was considered by many as an advocate of state socialism, and was believed to be fully in accord with the government ownership of railroads and public utilities. The Railroad Administration was industriously at work completing its plans for the complete unification of the railroads and frankly announced that it intended, during the interval between the declaration of peace and the turning back of the railroads to their owners, to conduct an experiment on a large scale to demonstrate the advantages of complete unification and government control.

The whole situation has changed since election day and the signing of the armistice. If the President were actuated by political motives, the logical thing, under present conditions, would be for him to shift the railroad problem on to other shoulders at the earliest possible opportunity. With a Republican Congress, peace conditions, and a complicated labor situation, the problem of operating the railroads and effecting a final solution of the railroad problem would be no easy task from the White House. Indeed, it has been intimated that even under present conditions, the President was carrying a red hot coal stove in his hands which he was exceedingly desirous of unloading as quickly as possible.

It is likely, however, that if the President had been trying to solve the difficulty from the standpoint of an econo-

mist he would have handled the situation as he actually did. The reconstruction and the railroad problems cannot be solved on the basis of pure theory. The President was right when he stated in his message last Monday that "it is surprising how fast the process of return to a peace footing has moved in the three weeks since the fighting stopped. It promises to outrun any inquiry that may be instituted and any aid that may be offered. It will not be easy to direct it any better than it will direct itself. The American business man has a quick initiative." The business men and those who have a thorough understanding of business and transportation must solve the problems, and in the words of the President again, "All that we can do as their legislative and executive servants is to mediate the process of change here, there and elsewhere as we may."

In thus discussing the reconstruction problem the President must have had in mind the various reconstruction conferences that are now being held throughout the land, and particularly the War Emergency and Reconstruction Conference which is being held at Atlantic City this week under the auspices of the Chamber of Commerce of the United States. It was necessary during the war for the War Industries Board to have closely associated with it in an advisory capacity more than 350 war service committees, each representing different crafts that it was necessary to deal with in order to secure the greatest possible co-ordination from all of the industries in helping to win the war. It is now proposed to use these war service committees of business men to determine the solution and adjustment of the problems of the reconstruction period. It is expected that the results of this conference will be far reaching and immediate, particularly if Congress will co-operate with the business interests by promoting such legislation as may be necessary in order to make possible a speedy readjustment of the industries.

The solution of the railroad problem is, of course, much more difficult than the readjustment of industries to peace conditions. The railroads were forced into a most unfortunate situation because of the peculiar laws and regulations under which they have had to operate and because of the fact that they have had to submit to regulation by state as well as federal authorities. It will be absolutely necessary that certain legislation be wiped off the statute books and that new legislation be enacted which will hold the railroads strictly accountable to the public and yet will be broad enough to allow them to develop and perfect their facilities. It will be necessary for Congress to take up the question, but in effecting a solution it should be guided by those who understand the transportation problem thoroughly. The Railway Executives Advisory Committee has studied the question for a long time and its suggestions should be listened to carefully. It is noteworthy that the Railroad Administration was able to improve operation by adopting the very measures that these practical executives had long advocated, but were prevented from using because of restrictive regulations and laws.

The Chamber of Commerce of the United States is planning for a series of conferences of men of wide experience and observation in various phases of the transportation problem. Undoubtedly these conferences will result in practical recommendations that will be presented to the business interests of the country.

It is evident that the advocates of government ownership are comparatively few in number; on the other hand, as the President has indicated, it is impossible for the railroads to go back to private ownership under the impossible conditions that existed before we entered the war. The problem, then, is to so modify these conditions that the roads can operate to advantage and so that investors will have an incentive for buying railway securities.

Congress has a big job on its hands, and because the President has handed it a red hot coal stove, the job must be handled quickly and settled once and for all.

Letters to the Editor

Express Company the Agent of the Railroad

NEW YORK, N. Y.

TO THE EDITOR:

I have read the article in your issue of November 1, covering the report of the Interstate Commerce Commission to the director general regarding proposed increase in express rates, and assume that the language used is substantially that of the commission.

While the commission's criticism of the usual form of express contract may be well grounded, its reference to payments by the express company "for the service which the railroad performs" appears to lose sight of the fundamentals of the relationship, namely, that it is the railroad company which is hiring the express company and which is paying the express company for the service which the latter performs.

Further on it suggests that the basis of charges "by the railroad company to the express company" be similar to that charged by the railroad to the government for transporting the mails. Mail service is something on which the government has a monopoly and the government therefore assumes the position of employer in its relations with the railroad. Express service, however, is really a transportation duty of the carrier and the carrier stands in the position of employer when it arranges with an express company to perform the service.

In the particular situation discussed by the commission this distinction would very likely make no difference, but it might become very important in other instances, and, as one of the underlying conditions, a mistaken conception of it ought not to go unchallenged. A true conception is very well illustrated in the director general's contract with the American Railway Express Company, wherein it is clearly set forth that the "Director General employs the express company."

EXPRESS.

Three-Cylinder Freight Locomotives

FOREST HILLS, N. Y.

TO THE EDITOR:

When in June, 1917, you illustrated and described the new Pennsylvania Decapod freight locomotive, I addressed you on the subject of this engine (see *Railway Age Gazette*, June 29, 1917) and suggested that it might have been better if it had been fitted with three cylinders instead of two.

It may be of interest to point out that there has lately been completed at the Doncaster Works of the Great Northern Railway, England, a powerful freight engine of the 2-8-0 type, having three cylinders arranged on the lines suggested in my communication. This engine is in general similar in appearance and design to the one illustrated in my article on British Goods Locomotives in the *Railway Mechanical Engineer*, December, 1916, page 621. The chief differences are that this engine has three 18 by 26 in. cylinders, instead of two 21 in. by 28 in., and that the second pair of coupled wheels are those to which the main rods connect. The third cylinder is between the frames and the second coupled axle is cranked. Thus all three pistons drive on one axle, the cranks on which are 120 deg. apart.

Walschaert valve motion is applied to the outside cylinders and by an ingenious arrangement of levers, the arrangement of which is the subject of a patent granted to H. M. Gresley, locomotive engineer of the Great Northern, the combined action of the right and left-hand motions operates the valve

for the inside cylinder. Piston valves are used for each cylinder. The cross-head guides are of the three-bar type, not unlike those used by the Pennsylvania on its 4-4-2 and 4-6-2 type passenger locomotives.

This is the first three-cylinder locomotive having cranks at 120 deg. to be designed for main line freight traffic in England. There are on the North Eastern a large number of three-cylinder Atlantic type express locomotives, and three-cylinder tank locomotives both for passenger and freight traffic.

E. CECIL PQULTNEY.

Women As Railroad Clerks

CINCINNATI, Ohio.

TO THE EDITOR:

Your edition of September 6 contains a letter under the caption of "Women as Railroad Clerks," which seems to call for a reply.

I do not in any way underestimate the importance of the railroad clerical positions. The conclusions contained in the letter referred to do not seem to be borne out by the actual conditions. As a general proposition it may be stated that the large proportion of positions, not only in local freight offices, but in general offices, may be creditably filled by women. Who will say that women do not make better abstract and accounting clerks than men? The full utilization of accounting machines for abstracting and statistical work demonstrates clearly that there is a broad field for women in railroad service. Women may be used entirely for expense and bill clerks. They may be used as cashiers, and counter clerks and they handle the public very efficiently. Women are now being used successfully as ticket clerks; also for information bureaus, car record clerks, etc. In these positions they are releasing men for more essential work.

The chief trouble is that enough attention has not been paid to the education of the woman clerk. Her activity in the railroad office has been confined to certain lines, largely stenographic. But it has been developed that where work of clerical importance recently has been placed upon the female clerk, good results have been obtained. Women undoubtedly can handle claims, and at least make investigations which are limited to the records, as well as men.

The objection to women, based on the fact that they get married after being educated, is somewhat specious. Surely experience has shown us that there is no greater difficulty in this respect than there is in the constant change and turnover of the male employees due to their seeking better positions and broadening the field of their experience. I will agree that there are certain classes of male railroad clerks who seem to be indispensable, but I am not at all certain that even in some of these capacities women are not competent if given the proper training. It cannot all happen in a day but it is surely a fact that the opportunity for the woman clerk in the railroad organization is becoming greater.

If railroad offices are handicapped because of the employment of women, the responsibility evidently rests, in some degree, with the supervising force, who are failing to instruct properly the female assistants. It cannot be stated that a lack of proper clerical knowledge is alone limited to women clerks. New male clerks are being hired daily in all railroad offices who are inexperienced. Instructions must be given to these clerks; the same effort of course would only have to be directed to inexperienced female clerks.

In view of the great need of men in railroad organizations in directions where we will admit that women are not fitted for activity, does it not behoove those charged with the immediate responsibility to make every effort possible to utilize such material as is available from the ranks of young women?

HUGH MCVEAGH.

Executive Assistant to District Director, Ohio-Indiana District, Eastern Region, U. S. Railroad Administration.

President Proposes to Relinquish Railroads

Urges Congressional Study of the Problem But Opposes
Prolonging Period of Uncertainty

EARLY RELINQUISHMENT of the railroads from the present form of control by the government, unless Congress shall be able to formulate within a reasonable time a definite and acceptable plan for the future policy towards the roads, was forecast by President Wilson in his address before a joint session of the two Houses of Congress on Monday. He declared that while he had no answer ready to the question of the permanent policy to be adopted towards the railroads and would welcome a Congressional solution of the problem, the one thing perfectly clear to him is that it is not fair either to the public or to the owners of the railroads to leave the question unanswered and that it will "presently become his duty to relinquish the roads, even before the expiration of the statutory period, unless there should appear some clear prospect in the meantime of a legislative solution." But as he also said later, "the one conclusion I am ready to state with confidence is that it would be a disservice alike to the country and to the owners of the railroads to return to the old conditions unmodified," there appears some doubt as to whether the suggestion of relinquishment should be construed as in the nature of a promise or as a threat.

Plans for the creation of a joint congressional committee to take up a study of the question were at once discussed by Senate leaders. The President expressed a hope that Congr. will have a complete and impartial study of the whole prob. instituted at once and prosecuted as rapidly as possible. This suggests a continuation of the investigation undertaken by the Newlands committee, which was interrupted when the government took over the roads last December. But unless Congress can agree within a reasonable time on a definite railroad policy for the future he stands "ready and anxious to release the roads from the present control" and "must do so at a very early date" unless some plan is advanced which would avoid "prolonging the period of doubt and uncertainty."

How long a period the President thinks he should allow for the determination of a railroad policy he did not say, but his words certainly do not indicate any intention of proceeding with the "scrambling" policy indefinitely in the hope that the people will like it so well they will vote to make it permanent at the election in November, 1920. In this respect the President's declaration seems somewhat at variance with the purposes semi-officially ascribed to the Railroad Administration shortly before the announcement of Mr. McAdoo's resignation. As the nearest approach to a crystallization of opinion on this subject thus far manifested in Congress is a strong sentiment in favor of the return of the roads to their owners, the President's statement would seem to indicate an early termination of the affairs of the Railroad Administration and the activities of the latter may now be expected to be directed rather in the direction of a settlement of the complicated relations with the railroad companies rather than toward more complete unification.

The position assumed by the President came as somewhat of a surprise to some of his friends, who had expected a pronouncement in favor of government ownership. While he referred to such a policy as a possibility, if necessary as an accompaniment of complete government control, he merely mentioned it in passing as the opposite extreme to simply releasing the roads and going back to old conditions. He placed far more emphasis on the third possibility—"an intermediate course of modified private control."

The text of that portion of the President's address which refers to the railroad question is as follows:

The President's Address

"The question which causes me the greatest concern is the question of the policy to be adopted towards the railroads. I frankly turn to you for counsel upon it. I have no confident judgment of my own. I do not see how any thoughtful man can have who knows anything of the complexity of the problem. It is a problem which must be studied, studied immediately, and studied without bias or prejudice. Nothing can be gained by becoming partisans of any particular plan of settlement.

"It was necessary that the administration of the railways should be taken over by the government so long as the war lasted. It would have been impossible otherwise to establish and carry through under a single direction the necessary priorities of shipment. It would have been impossible otherwise to combine maximum production at the factories and mines and farms with the maximum possible car supply to take the products to the ports and markets: impossible to route troop shipments and freight shipments without regard to the advantage or disadvantage of the roads employed; impossible to subordinate, when necessary, all questions of convenience to the public necessity; impossible to give the necessary financial support to the roads from the public treasury. But all these necessities have now been served, and the question is, what is best for the railroads and for the public in the future.

"Exceptional circumstances and exceptional methods of administration were not needed to convince us that the railroads were not equal to the immense tasks of transportation imposed upon them by the rapid and continuous development of the industries of the country. We knew that already. And we knew that they were unequal to it partly because their full co-operation was rendered impossible by law and their competition made obligatory, so that it has been impossible to assign to them severally the traffic which could best be carried by their respective lines in the interest of expedition and national economy.

"We may hope, I believe, for the formal conclusion of the war by treaty by the time spring has come. The twenty-one months to which the present control of the railways is limited after formal proclamation of peace shall have been made will run at the farthest, I take it for granted, only to the January of 1921. The full equipment of the railways which the federal administration had planned could not be completed within any such period. The present law does not permit the use of the revenues of the several roads for the execution of such plans except by formal contract with their directors, some of whom will consent while some will not, and therefore does not afford sufficient authority to undertake improvements upon the scale upon which it would be necessary to undertake them. Every approach to this difficult subject-matter of decision brings us face to face, therefore, with this unanswered question: What is it right that we should do with the railroads, in the interest of the public and in fairness to their owners?

"Let me say at once that I have no answer ready. The only thing that is perfectly clear to me is that it is not fair either to the public or to the owners of the railroads to leave the question unanswered and that it will presently become my duty to relinquish control of the roads, even before the

expiration of the statutory period, unless there should appear some clear prospect in the mean time of a legislative solution. Their release would at least produce one element of a solution, namely certainty and a quick stimulation of private initiative.

"I believe that it will be serviceable for me to set forth as explicitly as possible the alternative courses that lie open to our choice. We can simply release the roads and go back to the old conditions of private management, unrestricted competition, and multiform regulation by both state and federal authorities; or we can go to the opposite extreme and establish complete government control, accompanied, if necessary, by actual government ownership; or we can adopt an intermediate course of modified private control, under a more unified and affirmative public regulation and under such alterations of the law as will permit wasteful competition to be avoided and a considerable degree of unification of administration to be effected, as, for example, by regional corporations under which the railways of definable areas would be in effect combined in single systems.

"The one conclusion that I am ready to state with confidence is that it would be a disservice alike to the country and to the owners of the railroads to return to the old conditions unmodified. Those are conditions of restraint without development. There is nothing affirmative or helpful about them. What the country chiefly needs is that all its means of transportation should be developed, its railways, its waterways, its highways, and its countryside roads. Some new element of policy, therefore, is absolutely necessary—necessary for the service of the public, necessary for the release of credit to those who are administering the railways, necessary for the protection of their security holders.

"The old policy may be changed much or little, but surely it cannot wisely be left as it was. I hope that the Congress will have a complete and impartial study of the whole problem instituted at once and prosecuted as rapidly as possible. I stand ready and anxious to release the roads from the present control and I must do so at a very early date if by waiting until the statutory limit of time is reached I shall be merely prolonging the period of doubt and uncertainty which is hurtful to every interest concerned."

Congressmen Express Themselves

Any Congressional committee which might be created to take up an investigation of the railroad question would virtually take up the work undertaken by the old Newlands committee, and it is expected that the work of this committee will be revived. A number of prominent members of Congress expressed interest in undertaking such an investigation, although there was some doubt expressed as to whether anything could be accomplished at the present short session of Congress.

Senator Smith of South Carolina, chairman of the Senate Committee on Interstate Commerce and of the Joint Committee on Interstate Commerce, said that the last of the three alternatives mentioned by President Wilson is the one that will more nearly meet the necessities of the case and in his opinion would be the most generally approved by the public. Senator Cummins of Iowa expressed hearty agreement with the President that the railroads should not be returned under the former system of regulation and that Congress should go forward immediately with an exhaustive inquiry into the whole problem. Senator Underwood of Alabama declared it is physically impossible for there to be any legislation at the present session and that the President's attitude will obviously result in throwing the problem into the lap of the next Congress, which the Republicans will control.

Representative Sims, chairman of the House Committee on Interstate and Foreign Commerce, declared that return of

the railroads without legislation to preserve the benefits which government operation has conferred would be the strongest possible force operating for the creation of conditions that could be remedied only by the government taking over the railroads. He was satisfied Congress would not accede to the proposal to abolish state regulation. Representative Esch of Wisconsin, who is expected to be the next chairman of the House committee, agreed with the President's suggestion of an immediate inquiry and suggested that the present joint committee, which has already taken more than 7,000 pages of testimony, should undertake it.

Senator Watson of Indiana agreed that the railroads should not be returned without a modification of the old conditions, saying he did not believe they will ever be permitted to return to the competitive system. Senator Kellogg of Minnesota urged immediate study of the question and a strong government control over the issues of securities and over service. He declared that further legislation should be had before the roads are returned. Senator Penrose of Pennsylvania commented on the fact that the President had invited the opinion of Congress and declared that he would undoubtedly hear from the American people after a committee has had an opportunity to investigate the present plan, under which, he said, "the railroad system of the country has been nearly ruined and certainly demoralized."

It was apparent that an effort was being made to have the present Democratic Congress deal with the question. Chairman Smith of the Senate committee said on Tuesday that he would at once hold conferences with Chairman Sims of the House committee and with Railroad Administration officials with a view to taking up a study of the railroad situation in an effort to obtain legislation at this session. The chairmen of both committees have received letters from S. Davies Warfield, president of the National Association of Owners of Railroad Securities, asking that representatives of the association be given a hearing.

The first bill on the railroad question called forth by the President's address was introduced by Senator Thomas on December 3. The bill was prepared by W. W. Cook, general counsel of the Mackay Companies, providing for the creation of five regional railroad corporations for the New England, Central, Southern, Northwestern and Central Pacific districts, and also for the creation of a federal railroad board of six members to supervise the organization of a federal railroad company in each district to operate the railroads. The federal railroad board would consist of six members, one a new cabinet officer known as the Secretary of Railroads and five members to be appointed by the President with the advice and consent of the Senate. Under the plan the government would guarantee the payments of 3 per cent dividends on the stock of the federal railroad companies and the federal board would be given the power to fix and determine interstate rates and service, and also such intrastate rates and service as Congress has the power to regulate under the Constitution. This plan has long been advocated by Mr. Cook. It was referred to the Committee on Interstate Commerce.

Senator Hoke Smith of Georgia introduced a bill on Wednesday to repeal Section 10 of the federal control act, which prohibits the Interstate Commerce Commission from suspending President-made rates.

Daniel Willard, president of the Baltimore & Ohio, who was commissioned a colonel of engineers last month and ordered to sail for France, has been honorably discharged from the service. He had made all necessary arrangements for the trip to Europe, but the necessity for his service in France has become less pressing, and he now takes up the duties of the presidency of his road, unfettered by other assignments.

Railway Executives Begin Work on Reconstruction Plan

REPRESENTATIVES of the member roads of the Railway Executives Advisory Committee, at a meeting held December 4 at New York, adopted the following resolutions:

1. That private initiative, enterprise and responsibility in the creation, extension, improvement and operation of the American railways should, as a matter of national policy, be fostered and preserved, and that government ownership and operation of these facilities is not conducive to the highest economic efficiency of the country.

2. That the principle of reasonable, responsible and adequate governmental regulation of these facilities is recognized and accepted, but such regulation should provide for encouragement, protection and upbuilding of the railways as well as for the correction and check of any abuses.

3. That in view of the termination of the war emergency, which caused the taking over of the railroads and their operation by the federal government, the remaining period of federal control should be characterized by a policy of restoration of the integrity of individual properties and of preparation for their return to their respective owners in the highest possible state of efficiency to serve the country.

4. That a system of governmental regulation or control to be applicable when the properties are returned, should be provided by Congress, which, while safeguarding the public, will provide uniformity of regulation in essential matters, insure a business treatment of the vast interests involved, attract adequate capital and assure the commercial, manufacturing and agricultural interests of the country of transportation facilities, which shall keep pace with their growing necessities and deal equitably with questions affecting wages and working conditions of railroad employees.

5. That the standing committee, with the advice and assistance of the law committee, be requested to consider and report back to an adjourned meeting of member roads proposals to accomplish the foregoing results and plans and methods to be favored in connection with the return of the railroad properties to their respective owners.

6. That in their consideration of the subject the committee invite the co-operation and assistance of advisers fairly representative of the best and soundest thought and experience of the country.

7. That assurance be given to the director general of railroads and his associates of our earnest desire to co-operate with them in the performance of their important and difficult trust and in the adoption of plans for the return of these properties to private management and operation, which plans shall be just alike to the public, to the owners of the properties and to the employees engaged thereon.

In summing up the accomplishments of the Railway Executives Advisory Committee in its negotiations with the Railroad Administration over questions relating to proper allowances for purchase of new equipment under war conditions, depreciation of old equipment bought before the war, retirement of equipment and salvage items, A. P. Thom, counsel for the committee, stated that the roads had been allowed approximately \$175,000,000 in the way of concessions. Mr. Thom said that he expected the majority of government contracts would be signed by the time William G. McAdoo had relinquished his duties as director general of railroads.

Charles Hayden, a director of the Chicago, Rock Island & Pacific; S. M. Felton, president of the Chicago, Great Western; William Church Osborn, general counsel for the El Paso & Southwestern and the Texas & Pacific; Henry Ruhlelender, chairman of the St. Louis & San Francisco; L. E. Johnson, president of the Norfolk & Western; E. E. Loomis,

president of the Lehigh Valley; W. R. Cole, president of the Nashville, Chattanooga & St. Louis, and Bird M. Robinson, president of the American Short Line Association, were elected additional members of the permanent committee of the Railway Executives Advisory Committee.

The Fourth Liberty Loan in the Southern Region

B. L. WINCHELL, Southern regional director, has recently issued a detailed report showing the subscriptions to the Fourth Liberty Loan by employees on the Southern railroads. The total subscription was \$16,898,550. Of the total number of employees, 80.1 per cent subscribed, and the average subscription was \$89.60. The detail figures follow:

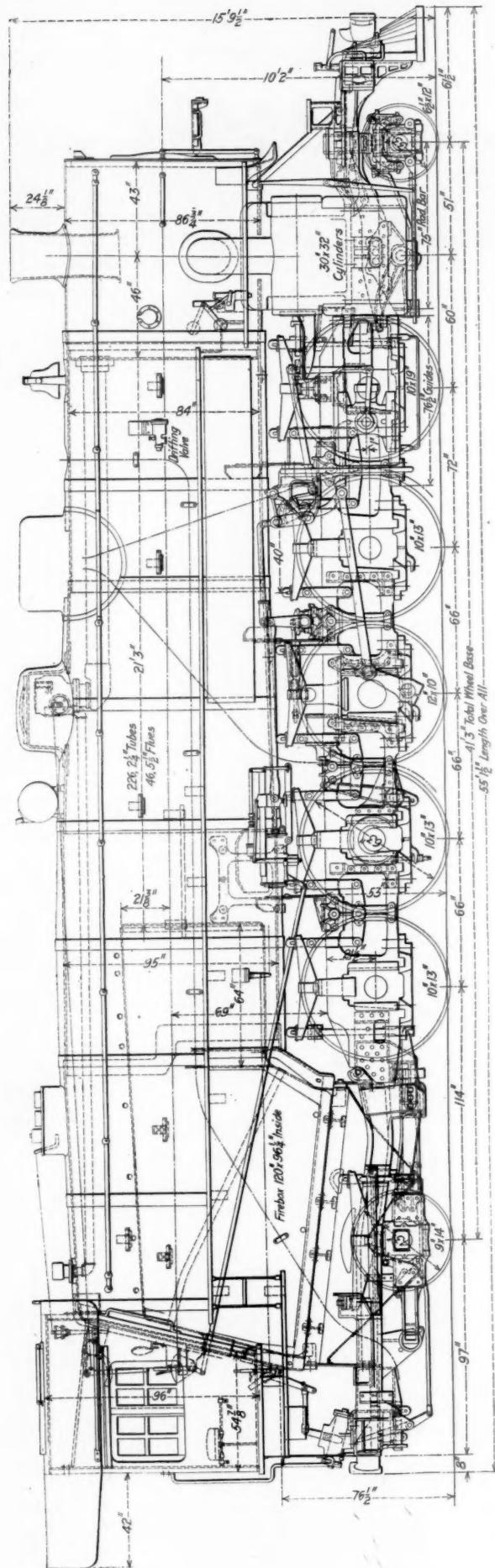
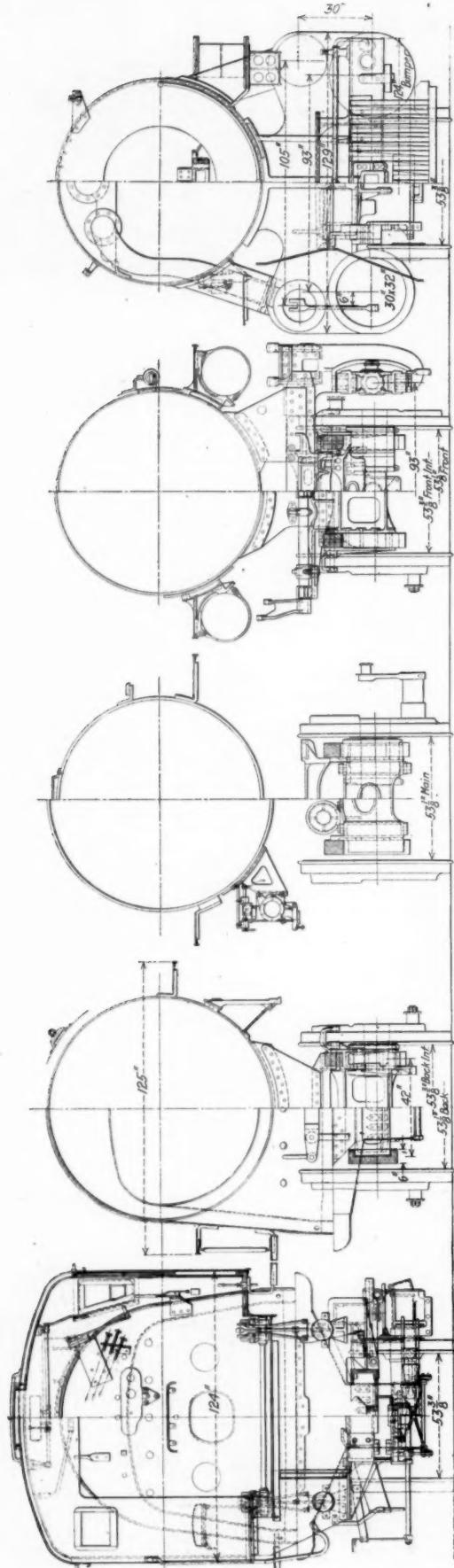
FOURTH LIBERTY LOAN—RAILROADS IN SOUTHERN REGION
FINAL REPORT

Name of railroad	Total employees	Total number on rolls	Total number subscribing	Percent- age of subscribers	Average amount per subscriber
W. Ry. of Alabama.....	\$100,950	1,341	1,168	87.1	\$86.40
Atlanta, Bir. & Atlantic..	217,100	2,719	2,625	96.5	82.70
Atlantic Coast Line.....	1,601,800	20,000	18,746	93.7	85.40
Alabama Great Southern.....	Included with Southern Railroad				
Carolina, Clinchfield & O. C.	Included with Southern Railroad				
Central of Georgia.....	1,018,350	9,258	9,258	100.0	110.00
Charleston & W. Carolina.....	172,250	1,244	1,123	90.3	153.40
Cin., N. O. & Texas Pac.....	Included with Southern Railroad				
Florida East Coast.....	288,800	3,000	2,874	95.9	100.50
Georgia Railroad.....	174,250	1,697	1,353	79.7	128.80
Georgia South. & Florida.....	131,400	2,004	1,492	74.5	88.10
Gulf and Ship Island.....	Included with Mississippi Central				
Gulf, Mobile & Northern.....	86,650	1,317	1,041	79.0	83.20
Illinois Cent. & Y. & M. V.	1,722,350	22,598	21,033	93.1	81.90
Louisville & Nashville.....	2,708,000	46,683	34,282	73.4	79.00
Louisville, Hend. & St. L.	72,250	1,021	859	84.1	84.10
Mississippi Central.....	218,050	2,773	2,626	94.7	83.00
Mobile & Ohio.....	572,900	7,536	6,359	84.4	90.10
Nashville, Chat. & St. L.	956,850	12,200	9,978	81.8	95.90
New Orleans Great North.....	Included with Mississippi Central				
Norfolk Southern.....	230,900	2,676	2,550	95.3	90.60
Piedmont & Northern.....	Included with Southern Railroad				
Washington Southern & Rich., Fred'bg & Pot.	260,000	3,735	2,803	75.1	92.70
Seaboard Air Line.....	1,695,050	17,837	15,305	85.8	110.80
Southern & Ass'd Roads.....	3,761,300	66,724	44,974	67.4	83.60
Southern R. R. in Miss.	76,200	747	742	99.5	102.50
St. Louis-San Francisco.....	378,050	3,000	2,992	99.7	126.40
Tennessee Central.....	102,700	1,300	1,082	83.2	94.90
Western Railway of Ala.	Included with Atlanta & West Point				
Washington Southern.....	Included with Rich., Fred. & Potomac				
Winston-Salem South'b'd.	19,400	286	286	100.0	67.80
Yazoo & Mississippi Val.	Included with Illinois Central				
Ark. & Mem. Br. & Term.	4,900	58	58	100.0	84.00
Memphis Union Station.....	24,450	242	242	100.0	101.00
Union Railroad.....	52,900	495	495	100.0	106.90
Charleston Terminal.....	12,800	80	80	100.0	160.00
Kentucky & Ind. Ter. R.R.	118,500	979	979	100.0	121.80
Regional Director's Office.....	41,500	223	223	100.0	186.00
Short Lines & Terminals.....	77,950	1,598	909	56.7	85.80
Total	16,898,550	235,371	188,537	80.1	89.60

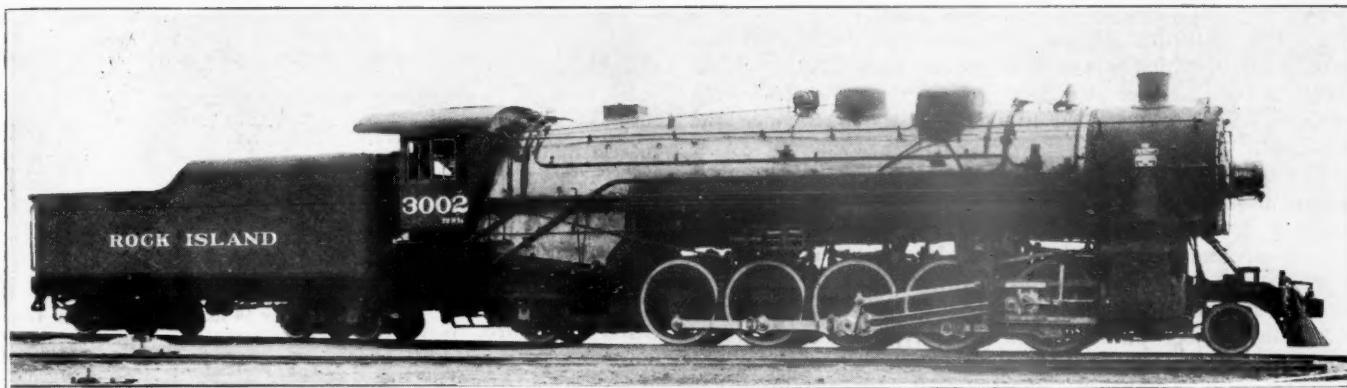


British Official Photo. Copyright by Underwood & Underwood, N. Y.

This Is the Way the Huns Tried to Leave the Railways—
That Is—Before They Had to Run Too Fast



Elevation and Sections of Rock Island 2-10-2 Type Locomotive



Santa Fe Type Locomotive with Several Unique Features

2-10-2 Type Locomotive for the Rock Island Lines

New Type of Cab and Spark Arrester; Grease Lubrication on Crossheads and Trailer

A NUMBER OF NOVEL and interesting features are included in the design of a recent order of ten locomotives of the 2-10-2 type built by the American Locomotive Company for the Rock Island Lines. These include a new type of cab, a new spark arrester, and unique lubricating arrangements. These locomotives are designed for a load of 60,000 lb. on each pair of drivers. They are intended to traverse 16 deg. curves and have lateral mo-

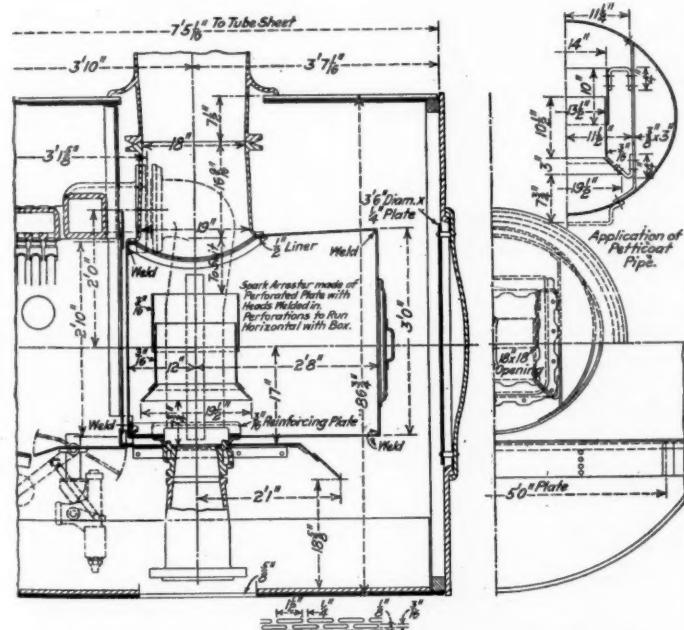
is applied. The firebox has a Security arch and is fired by a Duplex stoker. The grates are operated by the Franklin power grate shaker.

The Security spark arrester which has been in use for several years on the Rock Island Lines is used. This consists of a cylindrical or truncated conical box made of perforated plate or netting, closed at both ends and set between the nozzle stand and the stack extension. The box is reinforced around the openings where it is fastened to these parts. The petticoat pipe is supported on two braces inside the box. At the outer end a sliding door is provided which permits of readily inspecting the box or doing any work inside it. The entire box can be inserted or removed through the smoke-box door. The spark arrester is supported entirely between the nozzle stand and stack extension. The arrangement of the front end is clearly shown in the illustration.

Several months ago the Rock Island applied a new type of cab to a Mikado locomotive. It proved so satisfactory that a similar design is being used on all new power. The front wall of the cab, instead of being vertical, is sloped at the same angle as the back-head of the boiler and is set so that it projects forward only a few inches beyond the back-head. With this arrangement all the staybolts in the wrapper sheet are readily accessible for inspection or repairs. The angle of vision through the front cab window is also increased. The front part of the cab, which is eliminated in this design, serves no useful purpose but offers an opportunity for dirt to collect.

The main valves are of the piston type, 14 in. in diameter, and are operated by the Baker valve gear controlled by the Mellin power reverse. The valve chamber and cylinder bushings and piston and valve packing rings are of Hunt-Spiller gun iron. The piston rod packing is of the King type. The Nathan Manufacturing Company's drifting valve is used. A McCord force feed lubricator supplies oil to the valves and the lubrication of the air pump and stoker is provided for by the use of a Nathan two-pint two-feed hydrostatic lubricator.

A departure from the usual practice is the application of grease lubrication to the crossheads and trailer box hubliners, both of which are shown. The crosshead gibbs are of gun iron with recesses in the wearing surfaces, filled with babbitt. Grease is fed from a well at the center through a single hole to a groove extending across the face of the



Front End of the Rock Island 2-10-2 Type Locomotives with the Security Spark Arrester

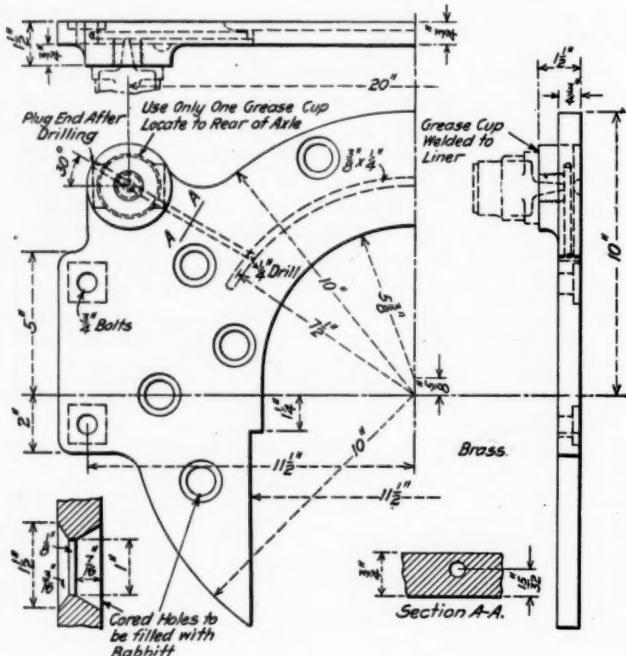
tion driving boxes on the front axle. The front and rear wheels are fitted with Detroit flange lubricators.

The clearances permitted the application of a boiler of large capacity. The boiler horsepower is 96.2 per cent of the cylinder horsepower rating. In the design of the boiler few innovations have been introduced. It is of the conical extended wagon top type with a 5-ft. 4-in. combustion chamber and tubes and flues $2\frac{1}{4}$ -in. and $5\frac{1}{2}$ -in. in diameter respectively, 21 ft. 3 in. long. A type A superheater with 46 units

gib. The hub-liner on the trailer box is fitted with two lugs to one of which is welded a grease cup. The cup feeds grease to the hub-face at a point behind the center line. An annular groove is provided to facilitate the passage of the lubricant.

The tender used with these locomotives has a cistern of unique design with a flanged bottom. The sides are stiffened by T-irons which are continuous down one side, across the bottom and up the other side. In the ordinary design the side and bottom T-irons are joined to angle irons extending around the bottom edge of the tank and are reinforced by gusset plates. This new type of construction stiffens the sheets and prevents vibration which often causes them to crack at the sides just above the gusset plates. It also eliminates a calking edge at the bottom of the tank. The tender is carried on a cast steel frame. The air connections between the locomotive and the tender are made with Barco flexible metallic joints of the 3-V type.

Among the specialties applied to these locomotives not already mentioned are Westinghouse E-T No. 6 brakes with an 8½ in. cross compound compressor, Commonwealth locomotive cradle castings, Miner A-18 draft gear, Chambers throttle valves, Pyle-National headlights, Economy radial buffers, Nathan non-lifting injectors, Sellers coal sprinklers,



Trailer Box Hub Liner

Ashton safety valves, and Viloco H double type sander. The principal dimensions, weights and ratios are given below:

General Data

Gage	.4 ft. 8 1/4 in.
Service	.4 ft. 8 1/4 in. Freight
Fuel	Bituminous coal
Tractive effort	71,900 lb.
Weight in working order	383,000 lb.
Weight on drivers	302,500 lb.
Weight on leading truck	26,000 lb.
Weight on trailing truck	54,500 lb.
Weight of engine and tender in working order	572,900 lb.
Wheel base, driving	.22 ft. 6 in.
Wheel base, total	.41 ft. 3 in.
Wheel base, engine and tender	80 ft. 2 1/4 in.

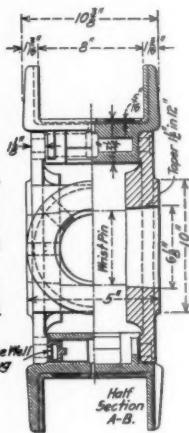
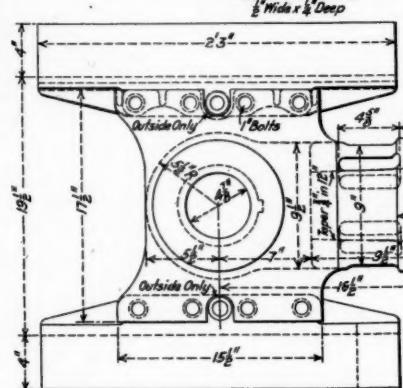
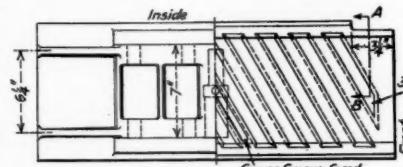
Ratios

Weight on drivers ÷ tractive effort	4.21
Total weight ÷ tractive effort	5.33
Tractive effort × diam. drivers ÷ equivalent heating surface*	710.1
Equivalent heating surface* ÷ grate area	79.5
Firebox heating surface ÷ equivalent heating surface, per cent.	6.13
Weight on drivers ÷ equivalent heating surface*	47.4
Total weight ÷ equivalent heating surface*	60.05
Volume both cylinders	.2618 cu. ft.
Equivalent heating surface* ÷ vol. cylinders	.243.6
Grate area ÷ vol. cylinders	.306

Cylinders	
Kind	Simple
Diameter and stroke	30 in. by 32 in.

Valves	
Kind	Piston
Diameter	.14 in.
Greatest travel	.6 1/4 in.
Outside lap	.1 1/16 in.
Inside clearance	.0 in.
Lead in full gear	.18 in.

Wheels	
Driving, diameter over tires	.63 in.
Driving, thickness of tires	.3 1/2 in.
Driving journals, main, diameter and length	12 in. by 20 in.
Driving journals, others, diameter and length	Front 10 in. by 19 in., others 10 in. by 13 in.
Engine truck wheels, diameter	.33 in.



Crosshead for the Rock Island 2-10-2 Type Locomotives

Engine truck, journals	.6 1/2 in. by 12 in.
Trailing truck wheels, diameter	.43 in.
Trailing truck, journals	.9 in. by 14 in.

Boiler

Style	Conical
Working pressure	.185 lb. per sq. in.
Outside diameter of first ring	.85 1/2 in.
Firebox, length and width	.120 in. by 96 1/4 in.
Firebox plates, thickness	Crown, back and sides $\frac{3}{16}$ in., tube $\frac{5}{16}$ in.
Firebox, water space	Back and sides 5 in., front 5 1/2 in.
Tubes, number and outside diameter	226, 2 1/4 in.
Flues, number and outside diameter	46, 5 1/2 in.
Tubes and flues, length	.21 ft. 3 in.
Heating surface tubes and flues	4,217 sq. ft.
Heating surface, firebox†	.391 sq. ft.
Heating surface, total	4,608 sq. ft.
Superheater heating surface	1,180 sq. ft.
Equivalent heating surface*	6,378 sq. ft.
Grate area	.80.2 sq. ft.
Center of boiler above rail	10 ft. 2 in.

Tender

Tank	Water bottom
Frame	Cast steel
Weight	189,900 ft.
Wheels, diameter	.33 in.
Journals, diameter and length	.6 in. by 11 in.
Water capacity	10,000 gal.
Coal capacity	16 tons

*Equivalent heating surface = total evaporative heating surface + 1.5 times the superheating surface.

†Includes combustion chamber and arch tube heating surfaces.

OUR FOURTH LIBERTY LOAN.—Railroad employees on the lines on the Great Northern Railway in Canada subscribed for \$76,800 worth of bonds of our Fourth Liberty Loan.

SIAMESE TO STUDY AMERICAN RAILWAY SYSTEM.—Eight Siamese students connected with the Royal State Railways are about to leave Siam for the United States for the purpose of taking up the study of American railway methods. This is a new departure inaugurated by the recently appointed commissioner general of the Siamese State Railways. These students will be under the care of the Siamese Legation in Washington.—Commerce Reports.

Annual Report Interstate Commerce Commission

Fundamental Aims of Railway Policy Discussed. The Commission's Relations to Federal Control

THE REQUISITES of an adequate transportation system, as the Interstate Commerce Commission sees them, are outlined by the commission in its annual report to Congress for the year ending October 31, made public on December 5. In addition to a discussion of what may be done with the railroads in the future, as to which no recommendations are made at this time, the usual routine account of the commission's activities is amplified by a discussion of its relations with the Railroad Administration. An abstract follows:

In our previous reports we have, as provided in the act to regulate commerce, transmitted to the Congress such information and data as were considered of value in the determination of questions connected with the regulation of commerce, together with such recommendations as to additional legislation as we deemed necessary. These bore on the regulation of competing common carriers, privately owned and operated. We deem it both unnecessary and inappropriate to renew these recommendations under existing conditions, an important feature of which is temporary unified operation of the carriers by a governmental agency during national emergency and under war powers. That emergency is passing, and in the light of experience gained and to be gained therefrom it will be profitable to appraise the results of unified operation and to apply them, in so far as pertinent, to the solution of the problems expressly reserved by the Congress for later consideration. The conditions, without precedent or parallel, which the war has produced now press upon the Congress matters of the gravest national and international concern. While we do not deem the present conditions and moment opportune in which to recommend concrete proposals for legislation, we may indicate certain lines of inquiry which must be pursued in order to reach sound conclusions.

The Future of the Railroads

Whatever line of policy is determined upon, the fundamental aim or purpose should be to secure transportation systems that will be adequate for the nation's needs even in time of national stress or peril and that will furnish to the public safe, adequate and efficient transportation at the lowest cost consistent with that service. To this end there should be provision for (1) the prompt merger without friction of all the carriers' lines, facilities and organizations into a continental and unified system in time of stress or emergency; (2) merger within proper limits of the carriers' lines and facilities in such part and to such extent as may be necessary in the general public interest to meet the reasonable demands of our domestic and foreign commerce; (3) limitation of railway construction to the necessities and convenience of the government and of the public, and assuring construction to the point of these limitations; and (4) development and encouragement of inland waterways and co-ordination of rail and water transportation systems.

Among the plans which doubtless will be proposed are the following: (1) Continuance of the present plan of federal control; (2) public ownership of carrier property with private operation under regulation; (3) private operation under regulation with governmental guarantees; (4) resumption of private control and management under regulation; and (5) public ownership and operation. Additional plans and modifications or combinations of those enumerated might be listed.

If the policy of private ownership and operation under

regulation is continued, the following subjects will require legislative consideration: (1) Revision of limitations upon united or co-operative activities among common carriers by rail or by water; (2) emancipation of railway operation from financial dictation; (3) regulation of issues of securities; (4) establishment of a relationship between federal and state authority which will eliminate the twilight zone of jurisdiction and under which a harmonious rate structure and adequate service can be secured, state and interstate; (5) restrictions governing the treatment of competitive as compared with noncompetitive traffic; (6) the most efficient utilization of equipment and provision for distributing the burden of furnishing equipment on an equitable basis among the respective carriers; (7) a more liberal use of terminal facilities in the interest of free movement of commerce; and (8) limitations within which common carrier facilities and services may be furnished by shippers or receivers of freight.

Should the policy of public ownership and operation be adopted there must be considered: (1) The just and fair price at which, and the terms under which, carrier properties are to be acquired; (2) prohibiting the operation of railways as a fiscal contrivance, insuring their administration in the interests of the convenience and commerce of the people, requiring that they shall be self-supporting and that their rates shall be properly related to the ascertained cost of service, and retaining and extending the economies and advantages of large scale production in transportation; (3) responsibility and relationship of the railway administration to Congress and other federal authorities and to the states; (4) guarding against the intrusion of party politics into railway management; (5) a status for railway officers and employees under which the railway service will attract and retain the best talent; and (6) maintenance of a tribunal for the determination of controversies which will inevitably arise even under public operation.

The above outline is a mere enumeration of some important points to be considered. We will at an appropriate time report to Congress such information, suggestions or recommendations as we believe may be of assistance in solving the many and difficult transportation problems.

The Commission's Relations to Federal Control

The magnitude of the task devolving upon the director general, no less than the war emergency which had created it, rendered imperative on our part a prompt offer to the United States Railroad Administration of any assistance that we could render. This tender was accepted by the director general, and the individual commissioners, in addition to their regular duties, prosecuted important investigations at his request.

Among these matters were the following: The assembling of financial information covering prospective capital requirements and security issues for the current year; the maintenance of the integrity of tariff publications in substantial conformity with the commission regulations; assistance in obtaining greater uniformity in freight classification; an inquiry into the advisability of federal control of express companies; an inquiry into the information or sources of information available to the United States Railroad Administration in the several departments or branches of the government; an inquiry into the intercorporate relations of railroads; an investigation of the wages of railway employees, for which purpose a special commission was appointed by the director gen-

eral, including a member of this commission; an inventory of the property of carriers under federal control; studies of possible economies in transportation by shorter routing of traffic and the avoidance of unnecessary cross hauling and by physical connection of railroads which had previously been operated under competition; the undertaking to serve as intermediary in matters before state commissions affecting carriers under federal control; an inquiry into the proposed discontinuance of operation of certain short lines of railroad; an inquiry into methods of fuel economy; and examination of statistical and accounting problems.

In addition to the above list of matters, which is merely illustrative, various concrete situations affording difficulty or perplexity were, at the director general's request, investigated by members of the commission, and recommendations submitted thereon. Among these may be mentioned: proposed federal control of the St. Louis municipal bridge; the projected removal of the freight terminal at Sedalia, Mo.; information as to existing schedules of coal rates; the development of certain inland waterways; grade crossing elimination in Indianapolis; rentals of carrier owned elevators at Kansas City, Mo.; store-door delivery in New York City.

In addition the services of various bureaus of the commission have been freely utilized at the instance of the director general, in particular the bureaus of tariffs, of carriers' accounts, of statistics, car service, and valuation.

At the director general's request, four of the commissioners have served on a general conference committee on the drafting of the standard compensation contract.

The federal control act laid the legislative foundation for the operation of carriers by the federal Railroad Administration. During the period of the emergency which led to its enactment to meet conditions growing out of the war it has changed in certain instances the functions of this commission, superseding in some cases the powers formerly exercised by us, altering in some degree our jurisdiction, and in other instances imposing upon us new duties. Certain salient changes resulting from this act are worthy of notice.

Changes in the Initiation of Tariffs

Railroads or transportation systems not under federal control remain, so far as interstate traffic is concerned, in all respects subject to the act to regulate commerce. For the most part, their gross revenues are small in comparison with those of the carriers under federal control.

For the carriers under federal control the President may initiate rates, fares, charges, classifications, regulations and practices which shall not be suspended by us pending final determination, by filing the same with us. His power so to initiate is not in terms confined to interstate traffic. Many of the schedules so filed purport on their face to apply alike on interstate traffic and on traffic moving wholly within the boundaries of any one state. Such schedules take effect at such time and upon such notice as he may direct, thus superseding the requirements of section 6 of the act to regulate commerce where statutory notice of 30 days is required, except where the commission allows changes upon shorter notice. The power of the President to initiate increased rates, fares, charges, or classifications is not limited by the proviso in the second paragraph of the fifteenth section of the act to regulate commerce, as amended, which precludes the filing of an increased rate, fare, charge or classification, except after approval thereof has been secured from the commission. The fifteenth section applications then pending have in practically all cases been ordered withdrawn by the director general. It has resulted that fifteenth section applications have been greatly reduced in number, and are practically confined to carriers not under federal control or where such carriers participate in traffic.

The total number of new tariffs filed has also shown a marked diminution. The policy of the Railroad Administra-

tion is clearly in the direction of a smaller number of tariff issuing bureaus. This will effect a material reduction in the number of schedules filed, and will simplify the tariff situation.

Effect of Control Act Upon Rate Controversies

General Order No. 28 issued by the director general increased freight rates and passenger fares generally throughout the United States upon federally controlled roads. The rates and fares so increased became and still are the governing rates of the country. Many of our matured and maturing reports and decisions were deferred to enable us to give careful consideration to the effect of this order. The rates under attack in practically all pending cases had been increased by the rates initiated by General Order No. 28. It was urged that these higher rates could not be passed upon by the commission so as to yield a lawfully effective order until the rates initiated by General Order No. 28 had been assailed as such by formal complaint to the commission.

The number of new complaints attacking rates instituted by the director general has up to date been less than the usual number filed against carrier-made rates. It is assumed that this is in part attributable to the feeling that existing rates partake somewhat of the character of a war measure.

Certificates Prerequisite to Executing Compensation Contracts

The federal control act provides that a carrier taken under federal control may be guaranteed during the period of federal control an annual sum

not exceeding a sum equivalent as nearly as may be to its average annual railway operating income for the three years ended June 30, 1917.

And also that

The average annual railway operating income shall be ascertained by the Interstate Commerce Commission and certified by it to the President. Its certificate shall, for the purpose of such agreement, be taken as conclusive of the amount of such average annual railway operating income.

In making the certificates we were governed by the consideration that the federal control act employed certain specific terms of the accounting system prescribed by us for the reports required of the carriers. The end of the three-year period designated in the statute did not however coincide with the end of the fiscal year currently in effect. We were, therefore, compelled to compute the railway operating income attributable to the first six months of the calendar year 1917 in conformity, so far as possible, with the accounting methods laid down by us for the carriers' observance. This certification is made subject to such changes and corrections as we may hereafter determine and certify to be requisite in order that the accounts and reports of the company used as the basis of computing said average annual railway operating income may be brought into conformity with our accounting rules or regulations in force at the time of such accounting, or in order to correct computations based on such accounts or reports.

The difficulty which arose from the different standards of maintenance and depreciation observed by different carriers was met by a provision in the standard compensation contract. Stated in general terms, this provides that during federal control the Railroad Administration shall expend sufficient on the carrier's property to insure its return in substantially as good repair and complete equipment as it was on January 1, 1918, with the proviso that an average annual expenditure for such purposes, equal, making due allowance for differences in wages of labor and cost of materials, to that made by the carrier itself during the test period shall be deemed a satisfaction of the covenant, and with a further proviso that expenditures in excess of those so made by the carrier for the test period, but required for the safe and proper operation of the property, assuming a use similar to the use for the test period, shall be made good by the carrier.

On September 3, 1918, we transmitted to the President the first lot of certificates required by the federal control act.

The act to regulate commerce is based upon the constitutional power of Congress to regulate interstate and foreign commerce. The federal control act is based upon the war powers of the national government. The latter power, while its exercise has ordinarily been of shorter duration, is of much wider extent than the former.

The Commerce Act as Affected by Federal Control

The federal control act would apparently have permitted the President to allow the carriers, as such, to operate the railroads under his general supervision and control. He has chosen, however, not to do so, but to operate them directly through the director general. The orders issued by the director general are the orders of the President whose representative he is.

It has thus come about that for the time being certain sections of the act to regulate commerce have, in their application to carriers under federal control, been superseded by the orders of the director general. Thus General Order No. 1 authorizing the disregard of established routes where efficiency or economy would thereby result has superseded the fifteenth section of the act to regulate commerce in so far as carriers were previously protected from being short hauled and in so far as the shipper's right to route the movement of freight is concerned.

Similarly, the director general's Order No. 1 unifying the transportation systems under federal control supersedes the protection thrown by section 3 of the act to regulate commerce around the carriers' exclusive right to the use of their tracks or terminal facilities.

Section 10 of the federal control act provides that the commission shall not suspend, pending final determination thereon, rates or fares initiated by the President; and that rates and fares initiated by the President shall become effective at such times and on such notice as he directs.

Fifteenth section applications to file increased rates, fares, charges or classifications are no longer compulsory so far as carriers under federal control are exclusively concerned. It is disputed whether the provision of the same section relating to the burden of proof to show that an increased rate is just and reasonable is qualified by section 10 of the federal control act.

Advisory Function of the Commission

If it be assumed that the power of the director general to initiate rates applicable wholly within a state is not inhibited by section 15 of the federal control act, the question arises whether the jurisdiction of the commission has not been extended by section 10 of that act to embrace a review of state rates so initiated. The first proviso of section 1 of the act to regulate commerce is that "the provisions of this act shall not apply to the transportation of passengers or property, or to the receiving, delivering, storage, or handling of property wholly within one state." The government has taken over transportation systems carrying both state and interstate traffic. The federal control act empowers the President to initiate rates, fares, charges, classifications, regulations, and practices whenever in his opinion the public interest requires, by filing the same with the Interstate Commerce Commission. Our jurisdiction to determine the reasonableness and justness of any such order of the President relates to "any rate, fare, charge, classification, regulation, or practice of any carrier under federal control." The findings and orders which the commission may enter after hearing are such as are authorized by the act to regulate commerce as amended.

There have been raised at least two important questions relating to the fourth section of the act to regulate commerce as affected by the federal control act. The first is whether pending fourth section applications filed by the carriers pro-

tecting their deviations from the rules of the fourth section, until a determination of the applications by the commission, may be continuously passed upon as heretofore; the second is whether the rules of the fourth section apply to rates initiated under the federal control act.

Under the language of section 8 of the federal control act the director general may avail himself of our advice, assistance, and co-operation. It has been and is our disposition and policy to respond to such requests, and when necessary or appropriate, we take testimony and hear arguments from interested parties in the premises. Important instances are the pending consolidated classification case and the express case.

Formal Docket

The number of formal complaints filed is 342, a decrease of 309. During the same period 576 cases have been decided and 77 have been dismissed by stipulations or on complainant's request, making a total of 653, as against 852 during the previous year. We conducted 596 hearings and took approximately 104,983 pages of testimony, as compared with 1,228 hearings and 210,133 pages of testimony during the preceding year. The reduction in formal complaints is attributable in large part to the patriotic motives of shippers, and in part to the amendment to the fifteenth section of the act.

Investigation and Suspension Docket

The amendment of August 9, 1917, to section 15 of the act prohibits carriers from filing schedules of increased rates, fares, or charges except after approval thereof has been secured from the commission. The operation of this law naturally has had the anticipated effect of substantially reducing the number of instances in which the power to suspend proposed increased rates, fares, or charges filed by carriers was sought or exercised. During the period covered by this report 10 such proceedings have been instituted, a decrease of 186, and 103 such proceedings have been disposed of, a decrease of 120. Under supplementary orders of suspension many proposed new schedules were added to pending investigations. The commission declined to suspend protested schedules in 18 instances, a decrease of 218 as compared with the previous year.

Bureau of Correspondence and Claims

The number of informal complaints received was 5,458, an increase of 158 over the preceding year. During the same period carriers filed 2,761 special docket applications for authority to refund amounts collected under the published rates, admitted by the carriers themselves to be unreasonable, a decrease of 2,122 under the preceding year. Orders authorizing refunds were entered in 2,752 cases, a decrease of 2,607, and reparation was so awarded in amounts aggregating \$682,900.50. In addition, 182 cases were dismissed or otherwise disposed of without orders.

Tariffs

There were filed 141,254 tariff publications, a decrease as compared with recent years, notwithstanding the large number of schedules filed to establish the 15 per cent increases authorized in eastern territory and the 25 per cent increases ordered by the director general. This reduction may be attributed in part to the operation of the amendment which requires carriers to secure the approval of a proposed increase before the tariff containing it is filed. During this period 2,891 schedules tendered for filing were rejected for failure to give lawful notice, and 556 schedules containing increased rates or fares tendered for filing were refused because the carrier had not secured the approval required.

Our Bureau of Tariffs receives and responds to continually increasing demands for rate information from shippers, from the Railroad Administration, and from departments and

bureaus of the government, including those chiefly interested in the transportation of troops and war materials.

During the year carriers have filed 5,282 applications for authority to file tariffs making increases in rates. The total number of such applications filed since the amendment of August 9, 1917, is 6,682. One thousand two hundred and forty-two applications have been approved, 83 denied in full, 116 denied in part, 3,897 withdrawn by the applicant carriers, 168 assigned to docket for formal hearings, and 1,237 are now pending.

Classification

Following the policy outlined in our previous reports, we have endeavored to stimulate the work in the direction of uniformity in freight classification. At a conference of the classification committees, called on our suggestion, it appeared that the work that had been undertaken by the carriers' uniform classification committee, and which did not include fixing of ratings, might be brought to a conclusion at a not distant date. We addressed an inquiry to the carriers as to why they could not, by January 1, 1919, or earlier effect an assimilation or consolidation of the three general freight classifications into one volume containing one set of uniform commodity descriptions with three rating columns, one for each territory, subtended, and with one set of general rules. Shortly after this communication was sent, the director of traffic of the Railroad Administration took up the question, and after conferences with us he appointed a small committee, of which our classification agent was a member, to take up the unfinished work of the uniform classification committee and bring forward a suggested consolidated classification carrying uniform rules and regulations and with three columns of ratings, one each for the official, western and southern classification territories. It was understood that the report of this committee in the form suggested would, upon request of the director general, be made the subject of an investigation by us. Under section 8 of the federal control act request for such an investigation and advice to the director general based thereon was made upon us. Hearings have been held in important commercial centers throughout the country, but have not been concluded.

It was not intended that this committee's work or its report should contemplate making the consolidated classification a source of additional revenue. Without forecasting anything with regard to the report which we will make after the hearings and arguments are closed, it seems not inappropriate to say that the individual representatives of the several classification territories injected numerous proposed increased ratings in the proposed consolidated classification. These were especially numerous in the southeast. Objections have been voiced to various features of the proposed classification, mainly with respect to the increased ratings and the rule relating to mixed carload ratings.

Uniformity in classification ratings will necessitate a great many changes. A change in rating automatically effects a change in rate, to say nothing of the effect on commercial competition between competitive articles or commodities. No two of the existing classifications have the same number of classes.

The ideal situation would be complete uniformity in ratings and a definite relationship in percentages of the rates on the several classes to the rate on the first class. Some progress has been made in the direction of more uniformity in the relationship of the rates on the several classes to the first-class rate, but conditions have created numerous and widely varying relationships, which have long existed, and now exist.

Express Companies

The block system of stating express rates has been adopted for intrastate business in all but three of the states, and these three are now, as we understand, preparing schedules

substantially in accordance with that system. The completion and adoption of these schedules will remove the conflict between state and interstate express rates mentioned in our last report.

Effective July 1, 1918, the principal express companies were merged into one company, which is operating under a contract with the United States Railroad Administration. It is expected that this consolidation will permit of substantial economies in operation and bring about improvement in the service. The character of the express service rendered during the past year has been complained of frequently as inferior and inadequate. The cause of these complaints has been attributed by the express company to extraordinary demands upon the service and insufficient and inefficient labor, due to war conditions. Informal complaints of delays in service and in adjustment of loss or damage claims and lack of pick-up and delivery service have been received. These have been brought to the attention of the carriers and a disposition to dispose of them properly has been shown, although in some instances the process of adjustment has been slow.

Bureau of Inquiry

Forty-six indictments were returned for violations of the act to regulate commerce and acts supplementary thereto. Twelve were against carriers or carriers' agents and 32 against shippers, passengers, or interested parties other than carriers. Two indictments, for conspiracy, were against carriers and shippers jointly. During the year 34 cases were concluded. In 20 cases pleas of guilty were offered by the defendants. In four cases verdicts of guilty were rendered, in four cases verdicts of not guilty were rendered, and in one case the jury disagreed. In one case a demurrer to an indictment was sustained. In five other cases indictments were dismissed upon motion of the government, deaths of defendants necessitating such action in two instances.

It has been necessary for the government to use a large proportion of the available railroad service for military traffic and for serving industries that are engaged in producing munitions, especially those on railway lines which reach Atlantic ports. At times embargoes have been laid against the transportation of certain commodities for private purposes to such ports, especially lumber. As embargoed lumber could readily be sold at enhanced prices in the markets at the points of delivery affected, certain shippers took action to procure its transportation into such markets despite the restraining embargoes. These shippers, without the authorization of government representatives, caused many carloads of lumber to be billed to seaboard terminals, improperly naming as consignees the United States Shipping Board, the Quartermaster's Department and divers individual officers of the United States Army. Transportation of such shipments as government freight was thus procured. While some of this lumber was sold, in competition with lumber dealers who employed honest methods, to government contractors, most of it was disposed of at the points of delivery for private uses. The practice added to traffic congestion and effected an unjust discrimination against honest lumber dealers who did not resort to such means in order to secure transportation. Nine indictments, charging discriminations in violation of the Elkins act, have been obtained against the dealers who employed these unfair methods.

The Chicago & North Western Railway Company, the Minneapolis, St. Paul & Sault Ste. Marie Railway Company, the Chicago, Milwaukee & St. Paul Railway Company and several lumber shippers have been indicted for granting and receiving concessions in violation of the Elkins act. Rails and other track material of substantial value were leased by the carriers to the lumber companies and the latter were not required to pay adequate compensation for the use of such material.

Bureau of Law

On October 31, 1917, there were 29 cases involving orders or requirements of the commission pending in the courts, of which 15 have been concluded. During the year two cases were instituted, so there are now pending in the different courts 16 cases. Of these, two are in the Supreme Court and 14 in district courts. Of the 15 cases finally disposed of, two were dismissed on motion of the petitioners; two, instituted for the collection of penalties, were dismissed on motion of United States attorneys; in one, prosecution was abandoned by the petitioner after the Supreme Court of the District of Columbia had rendered a decision upholding the order of the commission; in one prosecution was abandoned by the parties after a decision had been rendered by the Supreme Court in a case involving the same subject matter, namely, the *Illinois Passenger Fares Case*, and in nine, final decisions were rendered by the Supreme Court.

Bureau of Carriers' Accounts

The functions of the bureau with the beginning of the operations by the government of the railroads and other carriers under the jurisdiction of the commission were in some respects altered and enlarged. As to the railroads taken over by the government certain changes in detail as to accounting and reporting are necessary because of the maintenance for each carrier of two separate organizations, one by the government for operating and another by the carrier for financial or corporate purposes, whereas formerly but one organization was maintained. Like changes may prove to be necessary in the accounts and reports of sleeping-car, telegraph and telephone companies, depending on the contracts to be made with such companies by the federal government. Some provision also seems necessary for accounting for and reporting the expenditures of the administrative offices in connection with the operation of the railroads and other carriers now under government control.

During the period from January 1, 1918, the date the accounting under federal operation of certain systems of transportation became effective, to March 21, 1918, the date of the approval of the federal control act, the activities of the bureau were directed largely toward a completion of the general examinations of accounts in the field, previously started or arranged for; to a study of the probable necessary changes in accounting practice growing out of the assumption of operations by the government; and to the formulation of methods of conducting future examinations and the work of the field force generally in view of the changed conditions. The matter of the revision of the accounts and reports is still being prosecuted in co-operation with the carriers and those having charge of their operations. No changes are at present contemplated as to the railroads not taken over by the government.

The value of strict uniformity in accounting has perhaps never been better illustrated than in its relation to the federal control of carriers. The uniform systems of accounts have made it practicable for the Congress to fix a basis of compensation for railroads and other systems of transportation, based upon the "average annual railway operating income" for the three-year period ended June 30, 1917, to be certified by the commission as required by the federal control act. Some readjustment of the items affecting "average annual operating income" as stated in the reports of the carriers for the three-year period may be necessary, due to erroneous accounting, but this is a detail of relatively easy disposition.

It should be understood, however, that uniformity of accounting, so often referred to in this and previous reports, is not so far-reaching as to control, in a physical sense, what the managerial policy of any railroad or other carrier shall be; nor has the act to regulate commerce been construed by the commission as vesting in it any such authority or power. For

example, no attempt has been made to require the observance of a fixed standard of maintenance. The determination of the scale of maintenance to be followed by a carrier in the upkeep of its physical property is an exercise of the right to administer that property according to the best judgment of those to whom it has been entrusted; a right with which the commission is not empowered to interfere.

On the other hand, depreciation, while not within the control of carriers, is an inevitable factor of operating expense, and therefore should not be ignored by them in their accounts. Its measure, however, depends to a large extent upon physical and operating conditions, which vary a great deal with different carriers and in different sections of the country. In recognition of this fact the commission has so far permitted the carriers to determine for themselves the rate of depreciation that shall be charged, the reasonable accuracy of which, based upon its own experience, each carrier must be prepared to justify.

Bureau of Statistics

The work of this bureau has been considerably increased, owing to the statistical requirements growing out of federal control. Many special statements have been prepared upon the request of various officials of the Railroad Administration. In this bureau also are prepared the computations which lie at the basis of the certificates of average annual railway operating income, which we are required to make to the President.

In making these certificates, the amount of railway operating income, as defined in the federal control act, is first ascertained from the annual reports for the fiscal years 1915 and 1916 and the special report for the fiscal year 1917. The figure thus ascertained is modified in two particulars: (1) by charging to "Railway tax accruals" for the six months ended June 30, 1917, one-half the actual war taxes assessed for the calendar year 1917 under the act approved October 3, 1917; and (2) by charging to the appropriate operating expense accounts for the six months ended June 30, 1917, the total amount of wage increases actually earned in that period under the Adamson law. Apart from these two adjustments the only ones to be made are such as we may now or hereafter determine and certify to be requisite in order that the accounts and reports of the company may be brought into conformity with the established accounting regulations.

As explained in the report of last year, our statistical requirements have been considerably curtailed to reduce clerical labor of the carriers. By notice of April 12, 1918, we limited the monthly reports of revenues and expenses of steam roads to those companies having annual operating revenues above \$1,000,000.

Revised rules for reporting accidents were issued, effective as of October 1, 1918. The classes and causes of railway accidents will be analyzed more fully in order to make the statistics as useful as possible to those engaged in the work of accident prevention.

In Appendix C there are presented various figures compiled from reports on file in this bureau.

There appears first a statement of revenues, expenses and operating income for the months in 1918 for which returns are available in comparison with those for corresponding months in 1917. The railway operating income is stated with the modifications specified in the federal control act. The first six months of 1918 show a marked decline as compared with the previous year. In June the accruals on account of retroactive wage increases were included, which fact explains the extraordinarily poor showing for that month in operating income. In July and succeeding months the effect of increases in freight rates and passenger fares appears both in revenues and income. The railway operating income, without adjustment on account of equipment and joint facility rents, is given by months for the years 1914 to 1918.

The statement of railway accidents shows that fatalities to

trespassers are much more numerous than to employees and passengers combined. The larger number of "Other non-trespassers" killed is mainly the result of grade-crossing accidents, the figures being considerably in excess of those reported last year. Of the total number of persons injured, however, the major portion are employees.

A series of tables is also included to illustrate the development of steam roads in the United States since 1908. The continuity of the tables is somewhat impaired by the change in the date of the closing of the statistical year. It will be observed that this development has been in the direction of providing relatively more facilities on the existing lines rather than in the building of new railroads. Until the year 1916 the miles of yard tracks and sidings increased about as rapidly as the traffic, measured in loaded freight-car miles.

The operating income in relation to reported investment, while falling to a low level in 1914 and 1915, reached its maximum in 1916, when the carriers received practically 6 per cent on the investment shown by their books. The proportion of funded debt to capital stock shows but little change during the period. In the relation of net income, that is, income after payment of interest and rentals, to capital stock, the low point is the year 1915, while the year 1916 shows the highest ratio in the table. It is true, however, that the total amount accrued in dividends reached its maximum in 1911, following the prosperous year 1910, and since 1913 the proportion of stocks paying a dividend has declined. The dividends in relation to both dividend-paying stock and to all stock showed but little tendency in 1916 to recover from the low average of 1915. The tendency to an increased car-load and train load is marked. The economies of an expanding traffic were in large measure offset by increasing costs of operation. When all freight and passenger traffic is reduced to a ton-mile basis, the total operating expenses per ton-mile showed little tendency to decrease. This is also true with respect to labor compensation per ton-mile. The receipts per ton-mile show some tendency to decline. It should be noted that the ton-mile basis, with a varying proportion of various classes of traffic, and with changes in the length of haul, is not an entirely reliable index of rate changes. Earnings per passenger per mile increased during this period.

Bureau of Safety

A detailed report of the work of the Bureau of Safety is published as a separate document.

Violations of the safety appliance acts occurring subsequent to December 28, 1917, on roads operated by the director general have not been filed with the various United States attorneys for prosecution, as has been the practice heretofore. However, all infractions of the law on such roads are being referred to the director general to be dealt with in accordance with his Order No. 8, and suits for the penalty are being filed as to all violations occurring on roads which are privately operated.

It is as yet too early to express definitely the degree of success attained under this order in comparison with the former method of instituting suit for the penalty under the statute. Under the former system there was a double purpose served by prosecutions for the penalty, that of publicity in defending such suits and the disciplinary measures taken by the carrier to prevent subsequent cases being filed. Great care must be taken to place the responsibility on the proper party regardless of position, so as not to permit the shifting thereof from officials to employees or the evasion of same in any manner. With this object in view, our inspectors are procuring the facts and circumstances surrounding every violation of the law which comes under their observation, and this information is transmitted to the director general for action.

The casualties on steam railroads in connection with the

operation of trains during the calendar year 1917 are summarized as follows:

Class of person	Number of persons—	
	Killed	Injured
Trespassers	4,243	3,829
Employees	2,781	52,780
Passengers	301	7,582
Persons carried under contract, such as mail clerks, Pullman conductors, etc.	42	792
Other non-trespassers	2,200	5,987
Total of above classes.....	9,567	70,970

In addition, there were 520 persons killed and 123,835 injured in non-train accidents.

SAFETY APPLIANCE ACTS

During the calendar year ended December 31, 1917, 166 employees were killed and 2,508 injured in coupling and uncoupling cars; casualties resulting from employees coming in contact with overhead and side obstructions and from falling from and getting on and off cars occasioned 591 deaths and 16,384 injuries. This represents an increase of 30 in the number killed and 68 in the number injured in the former class of accidents, and 27 in the number killed and 447 in the number injured in the latter class of accidents, as compared with the calendar year ended December 31, 1916.

During the fiscal year, 95 cases, involving 377 counts, were transmitted to the several United States district attorneys for prosecution. Cases aggregating 66 counts were tried, of which 48 counts were decided in favor of, and 17 counts adversely to the government, 14 of which 17 counts are now pending appeal to the Circuit Courts of Appeals and 1 count is pending decision in the District Court. In cases involving 373 counts, there were 338 confessions of judgment and 35 dismissals. In the various Circuit Courts of Appeals, there were decisions in 6 cases involving 49 counts, in 5 cases of which, involving 38 counts, judgment was in favor of the government, while in 1 case of 11 counts, judgment was for the defendant. There are now pending in the various District Courts 145 cases involving 560 counts.

HOURS-OF-SERVICE ACT

During the year there were transmitted to the several United States district attorneys for prosecution 60 cases, involving 529 counts. Cases aggregating 154 counts were tried, of which 85 were decided in favor of, and 64 adversely to the government. In cases involving 780 counts there were 626 confessions of judgment and 154 dismissals. In the various Circuit Courts of Appeals there were decisions in 7 cases involving 187 counts, in 172 counts of which judgment was in favor of the government, and in 15 counts judgment was for the defendant. In 2 cases involving 120 counts, in which judgment for the government was affirmed by the Sixth Circuit Court of Appeals, the defendant has applied to the Supreme Court for a writ of certiorari. This application is pending decision. There are also pending decision before the latter court on writs of certiorari, 2 cases involving 29 counts, and before three Circuit Courts of Appeals on writs of error 3 cases involving 23 counts. Pending trial in the various District Courts are 111 cases involving 1,174 counts.

INVESTIGATION OF ACCIDENTS

During the year ended June 30, 1918, 91 train accidents were investigated by the commission. In these accidents, comprising 63 collisions and 28 derailments, 374 persons were killed and 1,730 were injured; the collisions investigated caused the death of 295 persons and the injury of 1,165 persons, while in the derailments investigated 79 persons were killed and 565 were injured.

Twenty-six of these collisions occurred on block-signaled lines, 13 in automatic block-signal territory, and 13 in non-automatic block-signal territory; 1 occurred within the limits of an interlocking plant; five occurred on track where yard rules were in effect, while 31 occurred on lines operated

by the train-order and time-interval system. Of the 13 collisions investigated which occurred in automatic block-signal territory, 8 were due to failure of enginemen to heed automatic block-signal indications, and 1 was caused by failure of a train crew to obey a rule requiring a train on a siding to wait two minutes after the switch was opened before pulling out on the main line; in the other 4 cases the signal system in use was not involved, 2 of these accidents being due to trains running away on mountain grades and 2 involving trains running against the current of traffic, which movements were governed by train orders.

The most disastrous accident investigated during the year, which resulted in the death of 60 persons and the injury of 128, occurred on a line operated by a modern automatic block-signal system; it was caused by an engineman falling asleep and failing to see a stop signal. In the report upon this accident it was pointed out that since accident investigations were begun in 1911 approximately 10 per cent of the total number of accidents investigated were caused primarily by the disregard of signal indications. As many of these accidents occurred on lines equipped with the best signal systems, properly installed and maintained, the urgent need of some further safeguard such as automatic devices designed to compel obedience to signal indications is apparent.

With but two or three exceptions the collisions investigated which occurred in non-automatic block-signal territory were caused by lax practices and non-observance of rules. The investigations disclosed that in many instances little, if any, additional protection, as compared with the train-order and time-interval system, was afforded, and the principal need disclosed by the investigation of these accidents is for closer supervision as well as strict adherences to the methods and practices prescribed for the operation of the non-automatic block system.

Approximately half of the collisions investigated occurred on lines operated by the train-order and time-interval system, and many of them were due to the inherent weaknesses of that system of train operation. Many could have been prevented by the proper application of block signal principles, and it is beyond question that the adoption of the block system on lines now operated by the train-order system would result in a material reduction in the annual casualty record.

We call attention to recommendations in previous reports relating to the standardization of railroad operating rules. In addition to the feature of increased safety which would result from uniformity in operating rules, accident investigations frequently disclose situations where safety conditions would be materially improved by the application and interpretation of rules which are now in effect on the more advanced and progressive roads of the country.

In many sections of the country railroads are experiencing difficulty in securing experienced and competent men. Instances have been disclosed where mere boys have been employed as operators, with little or no experience and training. In view of the abnormal industrial conditions attention is called to the necessity for extraordinary zeal in the instruction and examination of employees, as well as constant supervision to insure that proper practices are being followed.

Of the 28 derailments investigated 17 were caused by defective track and 3 were due to defective equipment; in 3 other cases the speed of the trains was the primary cause; in 3 cases the derailments occurred on account of local conditions, and in 2 investigations the causes of the derailments were not definitely ascertained. To secure proper track maintenance constant inspection, necessary repair work, and renewal of worn materials are essential. If the abnormal demands for steel and steel products have resulted or do result in curtailment of the supply of new rails available, and the continued use of worn rails, this fact, together with increased traffic in many parts of the country, requires that more than

ordinary precautions in the matter of inspection and repair be taken. Thorough inspection must also be relied upon to insure the safety of equipment.

INVESTIGATION OF SAFETY DEVICES

Under authority of the act of October 22, 1913, tests have been conducted during the past fiscal year of an air-brake system. A detailed report upon this device will be transmitted to the Congress separately. During the year plans of 93 devices were examined and opinions thereon transmitted to the proprietors.

The annual statistical report of January 1, 1918, published by this bureau indicates a net increase during the year of 1,123.8 miles of road operated by the block system, the total miles of road operated by the block system on January 1, 1918, being 99,531.7 miles.

Bureau of Locomotive Inspection

The work of the bureau of locomotive inspection during the fiscal year ended June 30, 1918, is shown in detail in the report of the chief inspector, published separately. The tables appearing below show, in condensed form, the number of locomotives and tenders and all parts and appurtenances defective, and the number ordered out of service on account of not meeting the requirements of the law. They also show the total number of accidents due to failure from any cause of locomotives and tenders and all parts and appurtenances thereof, and the number killed or injured thereby.

LOCOMOTIVES INSPECTED, NUMBER FOUND DEFECTIVE, AND NUMBER ORDERED OUT OF SERVICE

	1918	1917	1916
Number of locomotives inspected.....	41,611	47,542	52,650
Number found defective.....	22,196	25,909	24,685
Percentage found defective.....	53	54.5	47
Number ordered out of service.....	2,125	3,294	1,943

NUMBER OF ACCIDENTS, NUMBER KILLED AND NUMBER INJURED, BY COMPARISON

	1918	1917
Number of accidents.....	641	616
Increase over previous year.....per cent	4.1	..
Number killed	46	62
Decrease from previous year.....per cent	25.8	..
Number injured	756	721
Increase over previous year.....per cent	4.8	..

The following table shows the total number of persons killed and injured by failure of locomotives or tenders, or any part or appurtenance thereof, during the three years ended June 30, 1916-1918, classified according to occupations:

	1918		1917		1916	
	Killed	Injured	Killed	Injured	Killed	Injured
Members of train crews:						
Engineers	11	245	16	230	11	205
Firemen	19	306	21	304	12	225
Brakemen	6	62	13	60	9	74
Conductors	21	3	14	1	6	6
Switchmen	2	8	1	8	...	6
Roundhouse and shop employees:						
Boiler makers	1	11	...	11	1	11
Machinists	11	8	1	1	1	11
Foremen	1	4	...	1	1	3
Inspectors	4	4	...	3	...	3
Watchmen	3	...	5	...	8	8
Boiler washers	4	...	7	...	10	10
Hostlers	8	...	6	...	...	6
Other roundhouse and shop em- ployees	2	19	2	19	1	21
Other employees	26	5	22	...	7	7
Non-employees	24	1	23	1	1	3
Total	46	756	62	721	38	599

Summarizing, for the purpose of comparison, accidents and casualties resulting therefrom during the year shows an increase of 4.1 per cent in the number of accidents, with a decrease of 25.8 per cent in the number killed, and an increase of 4.8 per cent in the number injured.

The decrease in number of locomotives inspected is due to the fact that a substantial percentage of the inspectors were engaged in special work. During November and December, 1917, and January, February, and March, 1918, almost all inspectors were directed to check the congestion at terminals in an effort to see that locomotives were properly furnished

so that the coal movement might be facilitated and the fuel shortage relieved. A number of inspectors were permanently transferred to the service of the director general.

The period covered by this report was the most difficult in the history of American railroads in which properly to maintain locomotives. This is primarily due to the war conditions, which made it necessary to use to their maximum capacity all locomotives that were serviceable and to return to service many locomotives that had been out of service for years awaiting disposition, and which in some cases were put in service without having been thoroughly repaired. Proper maintenance of locomotives was also made difficult by the large number of mechanics who entered military service. The unusual demands for power resulted in the use of many locomotives in violation of federal laws, no doubt, with the thought that the movement of traffic was being expedited thereby, but the results of this practice were clearly demonstrated during the past winter.

Bureau of Valuation

It was stated in our report for 1917 that the field work of the engineering section would be completed during 1919. While the war has interfered with the prosecution of this work to a greater degree during the current year than before, it is still hoped that this limit can be met. From October 1, 1917, to September 30, 1918, road and track parties covered 53,244.56 miles of main line and 81,469.73 miles of tracks, which was in excess of any previous year. Some districts will finish slightly in advance of others, but it is still believed that our engineering field work can be substantially accomplished by January 1, 1920.

Our last report stated that the office work of the engineering section should be finished during 1920, but that statement must be somewhat modified. The effect of the war upon the office forces has been much more serious than in the field. For some reason it has been more difficult to maintain the integrity of that force, it having several times happened that more than 25 per cent of the office employees in a given district have changed during a single month. It is impossible to predict just what the effect of this will be, but unless conditions become worse, not much additional time will be required.

Our land section can not produce completed reports until certain information is received from the carriers as to their lands; and inability to obtain this has limited the progress of this section. At the present time carriers are doing fairly well in this respect and it is expected that this section will complete its work within the year 1920.

The greatest difficulty has been experienced in obtaining and retaining competent accountants. The needed information can be readily collected from the books of the carriers, but it is difficult to find men who are competent to put this into the form of a completed report. The field work of this section will be finished in the first half of 1920, but there may be some delay in the preparation of final reports.

Attention is again called to the fact that, owing to the failure of carriers to furnish necessary information as to their equipment, and especially as to their lands, it is found necessary to stop work upon particular properties and proceed with other properties. Today the work of the bureau in all branches is well advanced upon every considerable road in the country and is approaching completion upon many of the most important, but reports have been delayed by the lack of this information. Carriers did not realize at the outset the difficulties involved in compiling the original cost of their lands and unreasonably delayed the beginning of that work.

On the whole, it is believed that while the war has seriously affected this work it will not greatly postpone the period of final completion nor increase the total expense.

Reports in the first contested cases which were exhaustively presented, in which the methods and principles employed

have been stated, have been transmitted to Congress for its information. The methods and principles there stated are being applied to valuations now before us and will be followed in the further progress of our work.

Nine Months of Federal Railway Control

AMERICAN SHIPPERS paid 9.28 mills per freight ton mile in August, 1918, against only 7.19 in August, 1917, an advance of nearly 30 per cent; in September, 1918, operating expenses of the railways absorbed 75.95 per cent of operating revenues against only 68.37 per cent for the same month in 1917, and the American public paid nearly \$560,000,000 more for inferior service during the nine months to September 30, 1918, than it did during the same period in 1917. These are the concrete results under government control as computed by the Bureau of Railway News and Statistics, Chicago from the monthly reports to the Interstate Commerce Commission and the latest report of freight train operation issued by the Operating Statistics section of the Railroad Administration.

The relative figures of receipts per freight ton mile for August may be accepted as representative of what they will be for the two years in question. In the month of August last, Order No. 28, increasing freight rates, was fully operative, while Order No. 27, advancing wages, was only partially so, as its scale is being constantly added to by supplementary orders.

The advance in the operating ratio is even more startling than it appears, for September is naturally a month of high revenues and moderate expenses. In the ten years prior to 1917 the operating ratio for September ranged between 61.25 per cent (1909) and 67.43 per cent (1913).

The tale as to the great increase in the amount paid by American shippers and travelers may be told in three lines:

	Operating revenues (000 omitted)	Operating expenses (000 omitted)	Op. ratio including taxes
For 9 months to September 30, 1918..	\$3,637,420	\$2,948,135	85.29%
For 9 months to September 30, 1917..	3,079,191	2,167,019	75.41%
Increase	\$558,229	\$781,126	

That the expenses outstripped the revenues, great as they were, is not surprising, for the remedy of advanced rates was not applied until the epidemic of higher wages had run nearly six months.

More in detail the income account for the corresponding nine months of the two years under review was as follows:

	INCOME ACCOUNT OF STEAM RAILWAYS FOR NINE MONTHS TO SEPTEMBER 30, 1918	1918	1917
Average mileage	260,623	260,013	
Operating revenues:			
From freight	\$2,519,831,304	\$2,162,788,494	
From passengers	792,921,553	629,913,411	
From mail	41,484,473	46,765,632	
From express	92,047,932	81,340,132	
From other transportation.....	93,969,823	86,970,831	
From incidental, etc.....	94,217,712	81,413,461	
Joint facility, balance.....	2,947,650	.....
Total operating revenues.....	\$3,637,420,447	\$3,079,191,961	
Operating expenses:			
Maintenance of way and structures.....	\$471,398,456	\$361,736,028	
Maintenance of equipment.....	801,170,664	517,787,097	
Traffic expense	39,777,117	49,978,081	
Transportation expense	1,524,912,539	1,143,495,706	
General expense	84,910,701	74,016,323	
Miscellaneous and other.....	29,986,380	20,004,097	
Transportation for investment (credit) red	4,020,742	.....
Total operating revenue.....	\$2,948,135,115	\$2,167,019,332	
Net revenue from operation.....	689,285,332	912,174,629	
Tax accruals (exc. war taxes).....	144,166,280	154,909,441	
Railway operating income.....	\$545,119,052	\$757,255,188	

The most disquieting feature of this statement is the fact behind it that the vast expenditures for maintenance of way and of equipment do not provide the equivalent in facilities that half the amounts did a decade ago. The railway cost of living has doubled in ten years.

The Rock Island Builds Two Rainbow Arch Bridges

A Limited Weight Structure and a Shallow Floor Are Two Advantages Gained by This Design

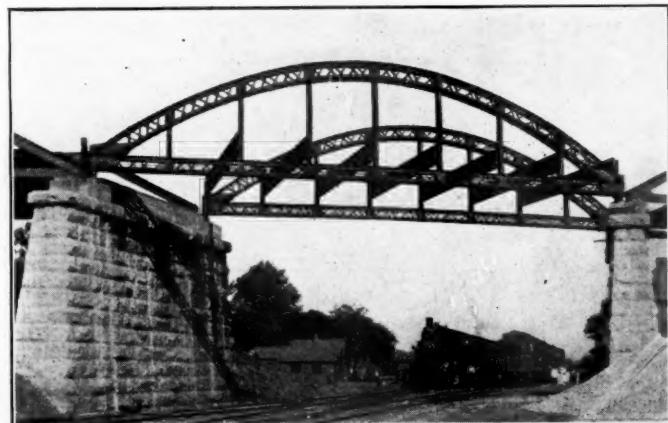
THE USE OF THE SO-CALLED "rainbow" arch for highway over crossings was adopted in two instances by the Chicago, Rock Island & Pacific because this type of structure afforded the advantages of reinforced concrete in locations where concrete construction would otherwise have been found impracticable. Concrete girder bridges of the through type, while affording a relatively thin floor in cases where there is limited headroom, assume decidedly



The Bridge at Little Rock

unwieldy proportions for spans much in excess of 35 or 40 ft. On the other hand, arch bridges of the usual design are of no avail where the clearance is limited. The rainbow arch provides a structure of limited weight, while affording a thickness of floor as shallow as may be obtained in any case where reinforced concrete construction is used.

The rainbow arch is essentially an adaptation to concrete of the bow-string arch used quite commonly in this country years ago for highway bridges. The principal modification in the application to concrete lies in the elimination of the

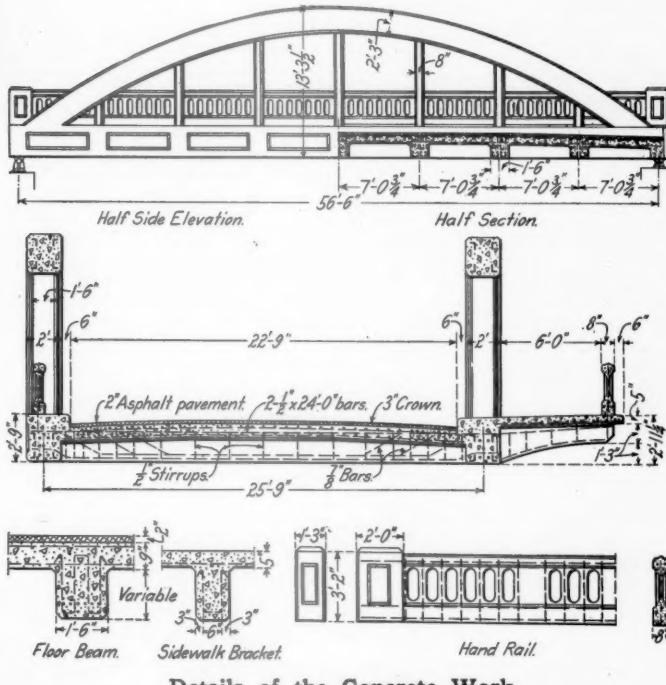


Steel Frame for the Arch at Horton with Temporary False-work Cross Beams in Position

diagonal web members, while the vertical web members serve purely as floor hangers. In other words, the upper chord is virtually an arch rib with the bottom chord serving as a tie to take the thrust at the springing line. From the practical standpoint, it is really a concrete truss bridge. In the two cases in which it has been applied on the Rock Island, the spans have been placed on old masonry from which the old superstructure had been removed. One of the photo-

graphs shows a bridge of this type of 60 ft. span, built at Little Rock, Ark., while another photograph and the drawings show the details of a 56-ft. span built at Horton, Kan.

The bridge at Horton affords a roadway 22 ft. 9 in. wide between the trusses with a 6-ft. cantilever walk on one side. The arch has a rise of 11 ft. with a radius of 36 ft. 3 in. for a length of 21 ft. at the crown and a radius of 49 ft. 5 1/8 in. for the remaining portions on either side. The arch rib is 2 ft. wide and 2 ft. 3 in. deep, while the bottom chord, which has the same width, is 2 ft. 9 in. deep. Hangers, spaced at intervals of 7 ft. 0 3/4 in., are 1 ft. 6 in. wide and 8 in. thick. These support floor beams spanning from truss to truss which are of the T-beam type with a width of 1 ft. 6 in. and a total depth of 2 ft. 3 in. at the center line of roadway. The roadway slab which is supported by these floor beams is 9 in. thick. The sidewalk



Details of the Concrete Work

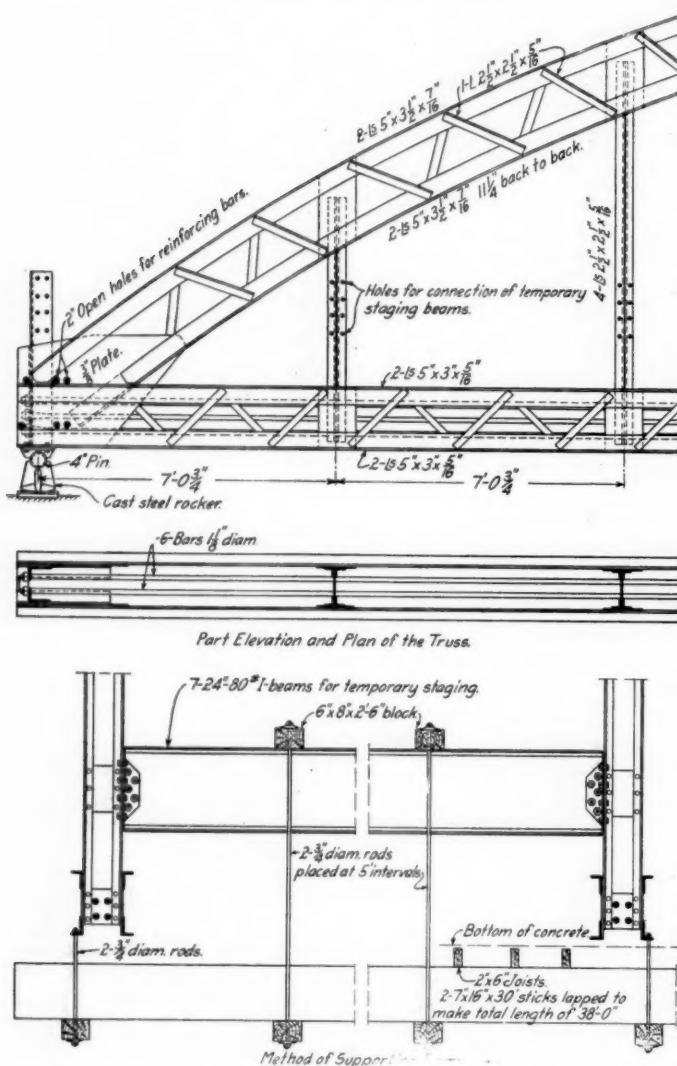
is supported by cantilever brackets of somewhat lighter proportions than the floor beams. A reinforced concrete hand railing built monolithic with the structure is provided on either side.

One important advantage from the standpoint of construction which was secured with this design, comes about through the use of structural steel trusses for the reinforcement, since these served to support the concrete formwork, thus eliminating all falsework underneath the structure. One of the drawings shows the part view of this reinforcement. It consists of a complete arch rib and bottom tie, each consisting of four 5-in. by 3 1/2-in. angles arranged in the form of a rectangular section with lacing on four sides of the top chord and on the two vertical sides of the bottom chord. Owing to the fact that the compression in the concrete of the arch rib is responsible for a considerable portion of the horizontal thrust at the springing line, the angle members of the bottom chord are supplemented by six rods 1 1/8 in. in diameter anchored to diaphragms at

the ends of the bottom chord against which the concrete of the ribs has direct bearing.

The hangers consist of four angles arranged in the form of an I-section connected by batten plates. These were given a length such that the bottom chord has a chamber of 3 in. when erected. To compensate in part for secondary stresses the riveted connections of the rib to the bottom chord and the splicing of the top chord at the crown were made with the splice in the bottom chord at the center of the bridge separated by 15/16 in., after which the six tie rods in the bottom chord were drawn up until the splice was closed. Pin bearings were provided at each end of the span with rocker shoes at one end to provide for expansion.

This plan also shows the arrangement by which the



The Steel Frame and Method of Supporting the Formwork

forms for the concrete were supported on the steel work. Old I-beams 24 in. deep, weighing 80 lb. per ft. were taken from stock and riveted between the hangers of the two trusses. A staging underneath the bottom chord was suspended from these beams and on this a platform was built which served as a support for the form work for the beams and slabs of the floor. After the floor had been poured and a sufficient time had elapsed for the concrete to cure, the staging and temporary beams were removed, after which the concrete for the arch ribs and hangers was poured.

The span at Little Rock, which was built in 1917, cost \$4,900. The basic design according to which these

bridges were built is covered by a patent owned by the Marsh Engineering Company of Des Moines, Iowa. The work on these two structures was carried on under the general direction of C. A. Morse, then chief engineer, and I. L. Simmons, bridge engineer, of the Chicago, Rock Island & Pacific.

Luther M. Walter Opposed to Government Ownership

UNLESS WE CAN HAVE private management with intelligent regulation we shall destroy the spirit of competition and the premium on genius which have made our country great. The great difficulty with any scheme of government ownership or government operation is that it inevitably places a query in the minds of those connected with it whether policies contemplated will be applauded or disapproved by the voters of the country. I am unalterably opposed to any action that will put the ownership or control of our railway system into the maelstrom of party politics, which has been the bane of the industrial and social life of the country.

This is the substance of remarks which were enthusiastically applauded by 350 shippers and railroad men at a noon-day luncheon of the Traffic Club of Chicago on November 29. Luther M. Walter, assistant to the director of Public Service and Accounting of the Railroad Administration, was the speaker, and he laid emphasis on clauses in the government control act and the President's proclamation which are specific in stating that federal control of railways was established only on account of the war emergency. Continuing, Mr. Walter said in part:

"Now that the reason for government operation has ceased to exist, the railways should, according to the expressed intent of Congress, be returned to their owners. Just how and when this will be done must now be determined and the policy decided upon by the administration should be made known to the security holders and the general public. There are three possibilities—the immediate return of the roads, their return at the end of 21 months following the signing of the peace treaty and their retention until definite legislation is passed which will ensure the healthy and prosperous development of our transportation system under private management.

"With wages higher than ever before, with war traffic gone and nothing as yet to take its place, it would be a calamity to return the roads to their owners without protecting them from the disastrous deficits which would inevitably pile up under the divided and short-sighted regulation of pre-war times. In its annual meeting at Cincinnati last week the National Industrial Traffic League announced its unqualified opposition to government ownership or operation and urged legislation which would protect the shipper and the public and at the same time remedy the conditions which impeded successful private operation before the establishment of federal control.

"There is some difference of opinion among security holders on the best disposition of the roads. Some fear unfair treatment in the event of a reversion of the properties to private hands and are therefore willing to cash in now if the government will offer reasonable compensation. Others believe private operation to be to the best interests of the nation, but advocate the passage of the necessary protective legislation. One of the reforms desired is federal control of the issuance of securities. Another problem which must be solved is the definite limits of state as against governmental regulation. These and other fundamental questions affecting transportation were being studied by a congressional commit-

tee before the war, and this body will undoubtedly resume its work."

Not only is Mr. Walter personally opposed to government ownership, as indicated previously in the foregoing abstract of his speech, but he believes that shippers and the public in general will demand the return of competition—not wasteful

competition, but a competitive condition which will retain the benefits achieved through the pooling of facilities, the economical routing of traffic and other results of joint action, at the same time producing the high quality of service which is only possible under private management outside the sphere of partisan politics.

New Schedules for Chicago Live Stock

Plan to Prevent Congestion in Union Stock Yards and Resulting Blockade on Terminal Lines

FROM 1,300 to 1,500 out of the 20,000 cars which arrive in Chicago daily are loaded with live stock. To avoid congestion in the Chicago terminal district and the Union Stock Yards, it is essential that this traffic be distributed as evenly as possible throughout the course of the week and that the packing houses receive advance information regarding shipments under way so that stock may be expeditiously disposed of upon arrival.

The first step taken to stabilize the movement of live stock for the Chicago market occurred on December 10, 1917, when the United States Food Administration established two zones in the territory tributary to Chicago with separate sets of shipping days. The first zone extends approximately 300 miles from the city and receives shipments for movement to arrive at Chicago for the Tuesday, Thursday, Friday and Saturday markets. The second zone includes territory about 100 miles beyond the first zone, or, to be more precise, all stations from which trains can make the Chicago market within the 36-hour limit on stock shipments. Live stock from the second zone is accepted for movement for arrival at Chicago for the Monday, Wednesday, Friday and Saturday markets.

The zoning system proved of great assistance to both the packers and the railroads, but was defective to the extent that it did not prevent congestion at the Chicago stock yards on Mondays. In the second zone, in districts where the quantity of stock shipped was not sufficient to justify more than one shipping day a week, the stock was generally shipped to arrive at Chicago on Monday, which is regarded as the best market day by many farmers. Unusually heavy arrivals on Monday, or, in fact, on any other day in the week, proved a hardship on the packers, especially because they had no previous advice of the volume of the shipments and were not prepared to handle them.

These difficulties, it is believed, will be overcome by new schedules for the movement of live stock to the Union Stock Yards, Chicago, which will become effective on railroads in the Northwestern region on December 9. Each railroad has been divided into districts and the day or days of the week and the time of day when stock cars will leave the stations included in each district are definitely fixed. In general, it has been arranged to give the shipper an opportunity to load on some other day than Saturday so that arrivals at Chicago on Monday will not be abnormal. In the past shippers of stock have suffered considerable loss of time and inconvenience because the railroads have not strictly observed their live stock schedules. The new plan will remedy this condition. If a train is scheduled to leave a station at 2:30 p. m., it will leave at that time with the punctuality of a passenger train. The shipper may assemble his stock accordingly and load it to conform with this time of departure.

To avoid congestion at Chicago the new scheme provides a number of protective measures. In order to enable the

Union Stock Yards & Transit Company to arrange for the necessary force to handle the stock promptly, the railroads will arrange, under the plan, to give advance notice of the arrivals for the following day's market. Federal managers of all railroads within the States of Illinois, Iowa, Minnesota and Wisconsin, which extend into the Chicago terminal district, will make a daily report by telephone, not later than 10:30 a. m., to the United States Bureau of Markets, Union Stock Yards, Chicago, stating the total number of cars of live stock which will arrive at the yards from their respective roads for the following day's market, classified as indicated below: Cattle; calves; hogs, single-deck; hogs, double-deck; sheep, single-deck; sheep, double-deck; horses; mules; mixed shipments. The report will include stock to be received from connections. Federal and general managers of such connecting lines will cooperate by furnishing the information as to stock to be delivered sufficiently in advance so that the daily report may be made to the Bureau of Markets before 10:30 a. m.

Train despachters having jurisdiction within the Chicago terminal district will report by telephone to the Bureau of Markets between 4:30 a. m. and 5 a. m. the number of cars and kind of stock which have reached the Chicago Junction Railroad during the night and up to the time the report is given, and the estimated time of arrival on the Chicago Junction of each train then en route which will arrive up to 5 p. m. of that date. The report will also include the number of cars and the kind of stock in the trains en route and their train numbers. Example:

Up to 4:45 a. m. the following cars of stock have reached the Chicago Junction from the C. & N. W., Galena division, 150 cattle, 5 calves, 27 hogs, 42 sheep, 2 horses, 1 mule, 3 mixed.

The following trains are en route: No. 132, engine 1736, reach the Chicago Junction, 5:10 a. m., has 5 cars cattle, 27 hogs, 12 sheep, 6 horses.

Extra 1742, 5:45 a. m., 32 cattle, 15 hogs.

Extra 1754, 6:15 a. m., 28 cattle, 17 hogs.

Each railroad will report by telephone to the train despatcher of the Chicago Junction as soon as possible after 6 p. m. of each day (a) the train numbers of the stock shipments under way; (b) the estimated time of arrival at the Chicago Junction; (c) the number of cars and kind of stock in each train en route at that time. Example:

Trains on C. & N. W., Galena division, will reach the Chicago Junction as follows:

Extra 1708, 11. p. m., 50 cars cattle.

Extra 1710, 12:30 a. m., 40 cattle, 5 calves.

Extra 1714, 1 a. m., 30 cattle, 20 hogs.

Extra 1718, 1:35 a. m., 30 cattle, 7 hogs.

Extra 1722, 2:30 a. m., 42 sheep, 2 horses, 1 mules, 3 mixed.

No. 132, engine 1736, 3:30 a. m., 5 cattle, 27 hogs, 12 sheep, 6 horses.

Extra 1742, 5:15 a. m., 32 cattle, 15 hogs.

Extra 1754, 6:15 a. m., 28 cattle, 17 hogs.

This report is to be supplemented at intervals during the night if there is any change in the estimated time of arrivals. It is highly important in handling live stock traffic that the train despatcher of the Chicago Junction receive the information included in the reports so that any action necessary to avoid congestion may be taken at the proper time.

In addition to making these reports, the railroads will send by mail to the regional director a daily statement covering the movement from each district. Example:

UNITED STATES RAILROAD ADMINISTRATION W. G. McADOO, Director General of Railroads			
REPORT OF MOVEMENT OF LIVE STOCK TO UNION STOCK YARDS, CHICAGO			
District Number	Date	Day of Shipments	Number of Cars Shipped
2	11/6	Wednesday	29
10	11/6	Wednesday	54
10	11/7	Thursday	41

R. H. ASHTON,
Regional Director.

The new schedules not only are designed to avoid congestion at the stock yards and further to stabilize the movement of the traffic to the Chicago market, but they are calculated to produce better service for the shippers. The advantages to the shippers accruing from a strict observance of live stock schedules under the new arrangement have been pointed out previously. It is also planned under the new scheme to give closer attention to the comfort and convenience of the shippers en route from point of origin to destination. In the past caboose cars on stock trains have been overcrowded because other than actual owners or employees accompanied stock. This is in violation of instructions, and stock contracts from now on will be issued only to owners or regular employees of owners. Railroads have been instructed to exercise care to insure the transfer of those accompanying stock from one caboose to another with the greatest safety and the least possible inconvenience, and officers in charge, particularly at terminals, have been directed to see to it that nothing is left undone to provide satisfactory service to the shippers.

While the carriers intend to give closer attention to the wants of the shippers, they also hope to receive greater co-operation from the latter in return. Shippers are urged to have their stock loaded on time and to place orders for cars far enough in advance to avoid any delay in loading and to economize train service. They have been also asked to order only as many cars as are needed to avoid a surplus at one station and a shortage at another, and to refrain from duplicating orders at stations on various lines in the same territory. Agents are requested to explain to shippers that stock will be moved on the schedules only on the days specified. If it is found that the business handled does not justify the continuation of all the shipping days provided for, consideration will be given to the elimination of certain days. In general, additional loading days were specified in the new schedules in order to bring about a distribution throughout the week of arrivals at Chicago from the various districts, and in particular to avoid congestion at the stock yards on Mondays.

Hale Holden, regional director of the Central Western region, has issued an order (December 3, Supplement No. 1 to Circular 209) to further facilitate the shipment of hogs. The order is to the effect that where designated stock shipping days are provided under the zone arrangement, and the permits under the embargo rules automatically expire before the date of such service, agents must immediately wire the Hog Control Committee for the necessary time extension, specifying the date of the next regular service.

Seven hundred and thirty-one officers and employees of the Canadian Pacific have been killed in the great war. This number is shown on the company's Roll of Honor, recently issued by C. H. Buell, staff registrar. The total is up to October 1; and the number of wounded, since the war began, is 1,585. The service flag of the company shows that 9,497 employees of the company joined the colors between August, 1914, and September, 1918.

Orders of Regional Directors

RENTAL CHARGE FOR LOCOMOTIVES.—In Order 126 the Southwestern regional director announces that the rate for the rental of locomotives to industries and small lines has been set at one-tenth cent per pound of tractive power per day, with a minimum of \$30 per day. This rate of rental will apply in all cases where locomotives are loaned to any such industries or small lines.

"Way to Ship."—In Circular 19 the terminal manager of the Chicago terminal district announces that the routings indicated in the publication, "Way to Ship," have been compiled to conform with circulars issued by the Northwestern regional director covering the routing of l. c. l. freight moving from or via the Chicago gateway. The authors of the "Way to Ship," namely, the Chicago Association of Commerce, will be advised of changes made and will arrange for supplements or corrected issues when necessary. The publication will therefore be considered as an official guide, subject to change, in routing and loading l. c. l. merchandise shipments. The employees of railways as well as shippers will be governed by the routing directions it contains.

Dining Car Rates for Soldiers.—Circular 137, Southwestern regional director, is substantially the same as Order 1200-4-69 A221 of Eastern regional director (see page 867, *Railway Age*, November 15).

Endorsing Bills of Lading "Subject to Delay."—The Eastern regional director, file 600-43 A277, states that it has been customary in the past during times of trouble, for the carriers to accept freight, endorsing the bills of lading "Subject to Delay." It will, of course, be necessary to continue to receive freight where conditions are known to exist that may retard transportation, and it is suggested that when conditions warrant, the following endorsement be used on bills of lading and live stock contracts in lieu of the above:

Abnormal conditions prevail on the lines of carriers which will handle this shipment and it is subject to delay. This advice is given to the owner of the property covered by this contract, in order that he may have due notice of the fact.

The Southwestern regional director has issued a similar order designated as No. 128.

Freight Not to Be Billed to Shipper's Order.—The Southwestern regional director in Order 125 calls attention to the fact that some shippers are sending grain, lumber and some other commodities to the principal markets "to shipper's order" without sufficient information as to the person at point of destination who is to be notified. This practice is forbidden in Rule 38 of the Western Classification, which prohibits the issuing of bills of lading for shipments consigned to order unless the name of the firm to whose order the shipment is consigned is plainly shown. The director states that this rule will apply on all shipments whether or not the tariffs covering them are subject to the Western Classification.

Annual Transportation for Dependents.—In Supplement No. 5 to Order No. 109 the Southwestern regional director states it will be permissible to continue for the year 1919 the former practice covering the issuance of annual or term transportation to wives and dependent members of families of officers and employees. Where such transportation is desired over foreign roads a list of the passes desired is to be submitted to the regional director.

Society of Railway Financial Officers.—The Eastern regional director, file 102-1-8 A289, states that under date of October 9 the Society of Railway Financial Officers was advised that until further orders the director general approved of that society making assessments and the carriers paying same, as may be necessary, for the current expenses of the association, such payments to be charged to operating expenses.

Rectangular Tanks Switching Locomotives.—The Eastern regional director, file 500-1-65 A284, asks whether locomotives used in switching service have rectangular tanks or otherwise and whether it is desired to make any change; if so, why?

Memberships in Various Organizations.—The Eastern regional director, file 102 A283, states that a number of applications have been received for permission to charge to operating expenses dues incident to membership in chambers of commerce, boards of trade, cotton exchanges, traffic clubs, and similar organizations. The conclusion has been reached that no railroad under federal control should maintain more than four such memberships in any organization as a charge against operating expenses.

The Southern regional director has issued a similar circular designated as Circular Letter No. 410.

Restrictions Against Use of Box Cars for Loading Perishable Commodities During Winter Season.—The Eastern regional director, file 2,000-26-157 A287, states that in order to secure immediate uniformity of action respecting certain outstanding embargoes against receipt of carload shipments of perishable commodities loaded in box cars, without lining, or other provisions requiring heater protection, the following rules should be observed:

1. Cancel any outstanding embargoes against acceptance from connections of carload shipments of perishable freight loaded in box cars.
2. Refrigerator cars must be restricted to use where such cars are actually required to afford protection to perishable traffic.
3. Accept perishable commodities loaded in box cars without protection subject to railroad responsibility where length of haul involved and direction of movement warrants judgment that shipment may move to destination without loss or damage.

4. If change in weather threatens loss or damage to perishable freight loaded in box cars, transfer of lading must be made to suitable equipment.

5. Instructions applicable at originating points are also to apply at point of reconsignment.

Common Use of Terminals.—The Eastern regional director, file 600-85A273, calls for the following information:

1. Suggestion has been offered that terminals of all lines under federal control at common points be thrown open for the unrestricted receipt and delivery of carload freight.

2. Before this question is decided it is necessary that I be furnished with statements showing the approximate amount of switching charges collected, which would represent a loss of revenue to the carriers if terminals were used in common by all lines.

3. In submitting figures consideration should be given to the practice of one line absorbing the switching charges of another at common points, as where this is done there is no actual net loss.

4. In some cases only a part of the switching charge is absorbed by the line-haul carrier, and the difference between the total charge and the absorption would represent loss of revenue under unrestricted use of terminals.

5. Please have the information called for in Paragraph 2 furnished at the earliest date possible, for quarter ended September 30, 1918.

6. Also advise how and to what extent this would complicate operations and cause congestions.

Reports of Fire Losses.—The Southwestern regional-director has issued Order No. 130, cancelling Order No. 162 relative to reporting fire losses. This revised order instructs that prompt telegraphic reports be made to the regional-director of fires resulting in losses of \$5,000 or over, showing the character and extent of the loss, whether covered by insurance, the means taken to extinguish the fire and where rolling stock is involved the number of cars and the damage to equipment and contents.

A similar order has been issued by the Eastern regional-director.

Transverse Fissures Cause Rail Failures

Engineer-Physicist Howard Suggests That Rails Are Being Stressed Beyond Service Limit

W. P. BORLAND, chief of the Bureau of Safety of the Interstate Commerce Commission, has issued a report of an investigation made by James E. Howard, engineer-physicist of the commission, of the rail failure which occurred on the Long Island Railroad near Central Islip, N. Y., on April 15, 1918. The failure of two rails caused the derailment of a troop train consisting of a locomotive and 12 steel coaches when traveling at a speed estimated to be about 30 miles an hour. The track was laid with 80-lb. steel rails, 30 ft. in length, with 17 or 18 oak ties under each rail. The ballast was gravel and cinders and anticreepers were used. No tie plates were used. An abstract of Mr. Howard's report follows:

The derailment resulted from the failure of two rails located on the north side of the track, the failure being clearly due to the presence of transverse fissures in the two rails. It is believed that the line of rupture first developed was that next the receiving end of the first rail followed in succession by the other lines of rupture in the direction in which the train traveled, the last fracture made being the one nearest the leaving end of the second rail. Each rail displayed a number of transverse fissures. Seven were displayed by rail No. 1 and six by rail No. 2. A seventh fissure was found in the latter when the rail was nicked with a chisel and broken for convenience in handling.

When polished and etched rails 1 and 2 were shown to be structurally very unsound. This decided lack in uniformity had also been observed in machining the rail sections. Portions of the cross section were spongy, other parts were hard and machined with difficulty. The flange of one section displayed irregular shaped voids along a part of its length. The

interior sponginess surrounded a central core in the head, with streaked metal in the web and upper part of the base.

From information acquired, it appears that the Lackawanna Iron and Steel Co., at the time these rails were rolled, used horizontal heating furnaces at the South mill at Scranton, new soaking pits having been introduced later in the year 1898. This practice would lead to such indications as were witnessed in these cross sections.

The chemical composition of these rails is shown on table No. 1, as follows:

TABLE NO. 1—CHEMICAL ANALYSES OF RAIL 1 AND SHORT LENGTH RAIL USED IN BENDING TEST

Description	Carbon	Mangan-	Phos-	Sulphur	Silicon	Copper
Rail No. 1:						
Corner of head.....	.63	1.24	.053	.121	.183	.735
Center of head near web.	.41	1.14	.021	.041	.157	.703
Short length rail:						
Corner of head.....	.61	1.30	.040	.127	.157	.721
Center of head near web.	.60	1.37	.043	.143	.149	.696
Rail No. 1:						
Near periphery of head and base.....	.62	1.30	.044	.088	....	....
From center core of head	.41	1.26	.020	.044	....	....

The results of tensile tests of longitudinal specimens from the head of rail 1 are shown on table No. 2:

TABLE NO. 2—TENSILE TESTS OF SPECIMENS FROM HEAD OF RAIL 1
[Diameter of stem, 0.505 inch; length, 2 inches.]

Location	Approximate elastic limit per square inch Pounds	Tensile strength per square inch Pounds	Elongation Per cent	Contraction of area Per cent	Appearance of fracture
Inside.....	77,000	85,000	1.5	5.7	Granular
Do.	75,500	100,000	5.0	5.7	Do.
Middle of head.....	67,000	116,000	10.5	13.3	Do.
Do.	67,000	102,000	4.0	5.7	Do.
Outside.....	69,500	72,000	2.5	5.7	Do.
Do.	73,500	102,500	4.0	5.7	Do.

The tensile tests showed brittle metal. In machining some parts of the rail showed toughness, while other parts were weak and brittle. Rail No. 1, as a whole, was irregular in chemical composition and physical state.

The internal strains in the failed rails were measured. Each of the strips on which the stresses in the head and base of rail 1 were measured expanded in length when detached from the remaining portions of the rail, showing the metal along them had been in a state of compression when the rail was intact.

The disposition of the strains in the interior of the head were indicated by the measurements. The relief of internal strains of tension occurred on the gage side and upper part of the head, with strains of compression released on the outside of the head and next the web. The maximum tension in the head, when the rail was intact, was therefore at some place on a diagonal line leading from the center of the head to the upper corner on the gage side, crossing the locality in which many transverse fissures have their nuclei. There was a change in the dimensions of the head when it was detached from the web, most pronounced along the top of the rail. The gaged length on the top of the head showed an extension of 0.0029 in.

When detached from the base (taken on a section located $5\frac{1}{2}$ ft. from the receiving end), the upper element of the head of rail 1 expanded 0.0030 in. while the under side of the head contracted 0.0024 in. on each gaged length in the fillets. The gaged lengths on the sides of the head were just above its neutral plane, each expanding one-thousandth of an inch. These measurements represent the first stage in the examination of this section. They were followed by the determination of the internal strains in the strip of metal from the middle of the head. The metal in this part of the head was in an initial state of tension, excepting the outside edge of the strip. The tension was greatest at the edge on the gage side of the head, while in the vicinity of the nuclei of transverse fissures it reached a value of 7,660 lb. per sq. in. Two sections of rail 2 were also examined for internal strains.

The rails had been in service for a period of 20 years. To outward appearances they were good-looking rails; little wear had taken place. The shapes of the heads showed but little distortion; yet within them destructive transverse fissures had developed. Over what interval of time these transverse fissures had been in existence, or the rate of their development, is not known.

These rails had carried the lighter traffic of the railroad for a period of time without known examples of transverse fissures having appeared. War activities increased the traffic seven to ten-fold in the amount of tonnage currently passing over them, with a considerable increase in the weight of the equipment, conditions which not unlikely contributed toward the formation of transverse fissures and accelerated their development.

The metal was no doubt defective at the time the rails were rolled. The rails having been in service for a period of 20 years before displaying these transverse fissures would lead to the inference that the defective state of the metal had had slight influence, if any, on the development of the fissures, and that they had developed when traffic over them increased and for that reason.

The structural unsoundness of the metal unquestionably detracted from its strength in a crosswise direction, and variations in strength in the direction of its length lowered its tensile strength. There was a considerable margin, however, between the elastic limit of the steel, and the sum of the internal stresses and the direct bending stresses under train loads, as the latter are understood to be. The margin between the working stresses and the elastic limit of the steel is the factor which has most to do with retaining the integrity of the metal unimpaired. What advantages accrue from

high tensile strength and ability to display a given elongation or contraction of area in the tensile test when referred to the endurance of rails under service conditions, are yet obscure matters.

The present rails affording such pronounced examples of defective steel, at the same time being coupled with a long term of service before displaying transverse fissures, gives emphasis to the query what influence the structural unsoundness may have had in accelerating or retarding the inception and rate of development of these transverse fissures. Judging from the present exhibit, the lesser number of transverse fissures recorded as having occurred in Bessemer rails over those made of open hearth steel, can not owe their comparative immunity to the excellence of the earlier product of the Bessemer process, nor more specifically to the casting conditions then in vogue. It may be possible that a certain looseness of structure in the zone of transverse fissures will permit the metal to respond to internal strains without starting an incipient fracture. The prevalence of transverse fissures in steel structurally sound and of satisfactory chemical composition removes from consideration the suggestion that essentially unsound steel must be present in order that a transverse fissure may be developed.

This derailment again forcefully calls attention to the dangers resulting from transverse fissures in rails. In these rails there were 14 transverse fissures, of which 13 were disclosed at the time of the derailment and one other in the subsequent examination of the rails. In two other rails which were also examined at the time 8 transverse fissures were found, making 22 fissures in all.

The continued display of transverse fissures in rails demands action should be taken for their prevention. If present equipment has reached that stage when increase in wheel loads is no longer permissible, this feature should be taken into account in the design of new equipment. This idea calls for a suspension of the trend which has marked the design and construction of new rolling stock, and which, in the immediate past, has been in the direction of both heavier motive power and rolling stock.

If the prevalence of this type of fracture is accepted as evidence that wheel loads are too high, the correction can not be made at once. The equipment, such as it is, must be used, and can be replaced only by the gradual process of renewal. For the time being reliance must be placed on superior maintenance of way and vigilance in track inspection to obtain immunity from the dangers which attend broken rails.

There are no remedial measures, as such, for the restoration of overstrained steel. The safety feature is in no way changed, whether the overloading is done on sound or unsound steel. Loads must be regulated according to the properties of the materials which are obtainable, but this will not be considered an excuse for the manufacture or use of steel if it can be improved in what is so vaguely designated as its quality.

It has been held on the part of some that the responsibility for the formation of transverse fissures rested upon the steel mills, although it has not been made clear what detail of manufacture was under consideration in attaching responsibility to the properties of the steel. Importance has been placed upon the facts that certain heats of steel developed transverse fissures, while other heats did not. In the preparation of these accident reports efforts have been made to acquire data upon the conditions of manufacture, investigating all tangible suggestions which have come to notice having to do with mill practice. The results of these efforts have not confirmed the views of those who regard the cause of transverse fissures as being due to mill practice. The discovery of a mill defect and its correction would put the matter of transverse fissures on a much less disquieting basis than the results of the investigations have led to. They tend

to indicate that rails are being strained beyond the ability of steel permanently to endure the service stresses, which is a very serious situation to meet.

The installation of rails of far greater sections than those which are now being rolled, in itself not yet found promising, would seem to exhaust the efforts which have been made in providing for present equipment and speeds on track as now constructed.

Opportunity is open to acquire more exact data from the

track than are now available concerning the conditions which attend the formation of transverse fissures. The limit of rolling loads on wrought iron rails was very early reached, and it has already been passed on rails of low carbon. The hardest rails, as well known, display transverse fissures and fail without warning. An appreciation of the conditions which prevail in the track should lead, without delay, to concerted action toward the elimination of this dangerous type of rail fracture.

Doings of the United States Railroad Administration

Marking Time Because of the Resignation of the Director General, Judge Lovett Resigns

AT THE TIME that President Wilson proposed an early relinquishment of the railroads from federal control, just six of the contracts between the Railroad Administration and the railroad companies providing for the compensation of the railroads during federal control had been signed, those of the Chicago & North Western; Chicago, St. Paul, Minneapolis & Omaha; Chicago, Burlington & Quincy; Fort Worth & Denver City; Colorado & Southern, and Atchison, Topeka & Santa Fe. The same contracts covered a number of subsidiary roads. In addition, contracts with 10 roads had been approved by subordinates in the Railroad Administration and were before General Counsel John Barton Payne for action. These included the Lehigh Valley; Buffalo, Rochester & Pittsburgh; Central of New Jersey; New York, Ontario & Western; Missouri & North Arkansas; Trinity & Brazos Valley; Richmond, Fredericksburg & Potomac; Great Northern; Gulf, Texas & Western, and Minnesota & International. Two contracts, those for the Southern Pacific and the Boston & Maine, were under discussion but had not been approved, 12 had been drawn up by the Railroad Administration and sent to the companies for discussion, 25 contracts had been prepared in a preliminary way by the Railroad Administration, but were awaiting further information from the corporations or the consideration of claims for special compensation in addition to the standard return. A number of other contracts had been prepared by the companies in preliminary form, but had not received detailed consideration by the Railroad Administration. The Railroad Administration has been awaiting receipt of a considerable amount of detailed information which has been requested of the railroad companies in a questionnaire sent to them a short time ago.

Railroad Administration Marking Time

The Railroad Administration has practically marked time since the announcement of Mr. McAdoo's resignation and pending the announcement of his successor. This has been due not only to the belief that the days of the Railroad Administration are numbered and that its future activities will be in the direction of "unscrambling" rather than along constructive lines, but also to the uncertainty as to how orders for equipment and improvements may be financed. While the operating department is busy with the readjustment of traffic from war to peace conditions, the Division of Capital Expenditures and the purchasing department have been working for several days with a view to gathering up loose ends. A large proportion of all recent requests for authorizations for new work have been turned down and an investigation is being made as to what the railroad corporations will assume in the way of capital expenditures as well as the possibility of cancelling any of the outstanding orders for

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100,000 cars, of which only a small percentage has been delivered, although it is understood that no definite decision to cancel any orders has been reached.

The question as to whether the corporations can be forced to accept and finance cars ordered by the Railroad Administration has been accentuated by the restraining order obtained by the Toledo, St. Louis & Western to prevent the director general from compelling it to accept 1,250 freight cars, in addition to the general uncertainty caused by the sudden termination of the war. The law authorizes the President to order carriers to make improvements or to provide terminals or equipment "necessary or desirable for war purposes or in the public interest." It would have been much easier to prove that cars or equipment were necessary or desirable for war purposes while the war was in progress than it will now be to prove them necessary or desirable in the public interest, particularly in the case of orders placed at high war prices but not completed until after the war emergency had passed. As the President stated in his address to Congress, some of the companies will consent to the plans for equipment and improvements, while some will not, and in view of the uncertainty, the administration does not want to commit either itself or the corporations any further than is necessary.

Most of the cars already turned out have been delivered to the roads that did not object to their allocation. Most of the other roads have filed formal protests and many of them are understood to be awaiting the final decision in the Clover Leaf case, which comes up on the question of a permanent injunction on December 16. Less difficulty exists as regards the new locomotives, as they are in greater demand, while the fact that the railroads this year have handled a greater traffic than ever before with very few new cars has strengthened the argument of the roads that claim they do not need them now.

Limit to Wage Increases

That there is a limit to the wage advances to be made by the Railroad Administration is made clear in a letter written by Director General McAdoo under date of November 27 to G. H. Sines, chairman of the Board of Railroad Wages and Working Conditions, in reply to a letter enclosing communications and petitions signed by railroad employees protesting against Supplements Nos. 7 and 8 to General Order No. 27 on the ground that the increases for shop and maintenance of way employees were not made retroactive to January 1, instead of September 1.

"As I have previously stated," Mr. McAdoo said, "I am obliged to consider, not only the interests of the employees of the railroads, but also the interests of the people of the United States, in determining questions of wages and working con-

ditions. The officers and employees of the railroads are no longer servants of private railroad corporations; they are now servants of the public. The director general is also a servant of the public, owing a duty to the public as well as to the employees. I cannot be indifferent to the interests of the public, any more than I can be indifferent to the interest of the employed, and my constant effort has been to find the line of justice as represented by fair wages and working conditions, and square it with the interest of the employees and the interest of the public.

"I have not hesitated to announce decisions which involved immense increases in the wages of railroad employees throughout the country, estimated at over \$500,000,000. These increased wages must be paid by the people of the United States, and in order to pay them I sometime ago announced large increases in freight and passenger rates. Numerous protests against these have been made by shippers and farmers and other organizations throughout the country, and warn us all that we must keep our demands within reasonable limits, because there is a point beyond which the public will not sustain us in raising wages.

"At my direction, on May 25, 1918 (General Order No. 27), railroad employees in all crafts were granted increases in rates of pay, and for reasons with which you are familiar, these rates of pay were made retroactive to January 1, 1918. The employees named in Supplements 7 and 8 received increases in their rates of pay at that time; and, as stated in General Order 27, no problem so vast and intricate as that of doing practical justice to the two million railroad employees of the country could be regarded as completely settled and disposed of by any one decision or order. Therefore, your board was established to take up, as presented, any phases of the general problem relating to any class of employees or any part of a class of employees which still justly call for further consideration. At my direction, the claims of employees mentioned in Supplements 7 and 8 to General Order 27 were given further consideration by your board, and after an exhaustive investigation, decisions embodied in Supplements 7 and 8 were rendered.

"It is true that wages in excess of those provided for in Supplements 7 and 8 are paid in some localities and by some industries, but these are of a transient character, such as shipyards, munition plants, etc., and their work will cease or be greatly reduced upon the return of peace. It is, however, undeniably true that the wages established in Supplements 7 and 8 compare as a class favorably, and perhaps much more favorably, with those paid elsewhere.

"When we consider these railroad wage questions, it must be remembered that the railroad business is not temporary, such as referred to above, but of a permanent character, and offering to employees steady work. It must also be remembered that the revenues of the railroads are not affected by the varying conditions which permit private enterprises to earn high profits, but, on the contrary, are limited by rates fixed by lawful authority and measured by the ability and willingness of the public to pay them. Railroad employment is also not affected to the same extent as are other industries, by fluctuations and uncertainties, due to dull periods. Railroad employees not only have steady work and, generally speaking, more favorable living conditions as against temporary and uncertain employment, and frequently less satisfactory living conditions in war industries, but they also have a reasonable amount of free transportation for themselves and their families, as well as other privileges and advantages which are everywhere recognized as of substantial benefit to them.

"Contrasting the permanency of railroad employment, the opportunities for promotion and other privileges enjoyed, the bases established in Supplements 7 and 8, in my judgment, are fair and reasonable. From reports, communications

and resolutions I have received from railroad employees in various parts of the country since Supplements 7 and 8 were promulgated, the vast majority of railroad men appear to be satisfied with those orders, and I am sure that they are willing to give loyal, faithful and efficient service to their government at the rates of pay prescribed therein. We cannot justify to the American people the great increase in wages and the immense improvement in working conditions already granted unless every employee proves by his work that he is worthy of it. I want the men to prove themselves worthy of it, and I believe that they will.

"Your board has given all the time and thought to this particular matter which it is right and proper for them to do, and it is essential that they should now give consideration to the matters arising with respect to other employees.

"I cannot, therefore, see my way clear at this time to direct that the board should reopen this particular matter, as there has never been a time when the public interest demanded more urgently the devotion and unselfish services of all classes of railroad employees.

"It is necessary that the employees of the railroad should understand that the decisions made in Supplements 7 and 8 cannot now be reviewed, as it is not practicable at this time, with the reconstruction period before us, to consider the matter, and it was not my intention following the promulgation of General Order 27, in granting further increases in rates of pay, that they should be retroactive to January 1, 1918."

Wages of Telegraph Operators

In connection with protests and threats on the part of telegraphers in various parts of the country to strike because of dissatisfaction with the wage order, Director General McAdoo sent the following telegram to H. B. Perham, president of the Order of Railroad Telegraphers:

Telegrams received from individual members of your organization indicate that they do not understand that when a wage order affecting all employees of a class is thought to be detrimental to certain employees of this class, a rule has been established whereby the representatives of that class are privileged to again appear before the Board of Railroad Wages and Working Conditions and present the claim of such individuals. Other classes of employees have already availed themselves of this privilege. It would be unfortunate if you did not communicate to the men you represent that they have this privilege and suggest to them that their claims should be submitted to the Board of Railroad Wages and Working Conditions, which will give them prompt consideration.

Interpretation of Wage Order for Shop Employees

Director General McAdoo has issued the following interpretation No. 1 to supplement No. 7, to general order No. 27, the supplement applying to the wages of shop employees:

OVERTIME, MONTHLY, WEEKLY OF DAILY PAID EMPLOYEES.

ARTICLE I.

Eight consecutive hours, exclusive of the meal period, constituting a day's work from the effective date of Supplement No. 7 to General Order No. 27, the increases provided for therein and applicable to monthly, weekly and daily paid employees, specified in Articles I, II and VI of Supplement No. 7, are based upon the recognized number of working days constituting a calendar year (including Sundays or holidays where they have been considered a part of the employees' assignment) and the rate of pay in effect January 1, 1918, prior to the application of General Order No. 27, exclusive of overtime. The following examples illustrate the method to be used in establishing the straight time hourly rate, as the basis of payment for overtime service.

Example (a). Employees working 30 days per month at a wage amounting to \$60 per month on January 1, 1918, prior to the application of General Order No. 27, would on September 1, 1918, under Supplement No. 7, Article I-(a) automatically advance to the basic rate of \$62.50 per month, plus \$25 increase, establishing the rate of \$87.50 or \$1,050 per year. In computing the pro rata rate per hour for overtime pay for monthly, weekly or daily paid employees, take the number of working days constituting a calendar year, multiply by eight and divide the annual salary by

the total hours, exclusive of overtime and disregarding time absent on vacations, sick leave, holidays, or for any other causes. In determining the hourly rate, fractions less than one-fourth of one cent shall be as one-fourth of one cent; over one-fourth and under one-half, as one-half cent; over one-half and under three-fourths, as three-fourths; over three-fourths, as one cent.

Example (b). Yearly wage, \$1,050 ÷ 2,880 hours = 36.45, or 36.5c. per hour.

Example (c). Yearly wage, \$1,200 ÷ 2,880 hours = 41.66, or 41.75c. per hour.

Example (d). Yearly wage, \$1,300 ÷ 2,880 hours = 45.14, or 45.25c. per hour.

Example (e). Yearly wage, \$1,500 ÷ 2,880 hours = 52.1, or 52.25c. per hour.

Example (f). Yearly wage, \$1,800 ÷ 2,880 hours = 62.5c. per hour.

NOTE.—It is to be understood that 2,880 hours is illustrative only; the hours per year will vary as the assigned work days per year vary.

ARTICLE II.

On February 21, 1918, the director general issued General Order No. 8, paragraph 3 thereof reading as follows:

The broad question of wages and hours will be passed upon and reported to the director general as promptly as possible by the present Railroad Wage Commission. Pending a disposition of these matters by the director general, all requests of employees involving revisions of schedules or general changes in conditions affecting wages and hours will be held in abeyance by both the managers and employees. Wages, when determined upon, will be made retroactive to January 1, 1918, and adjusted accordingly. Matters of controversy arising under interpretations of existing wage agreements and other matters not relating to wages and hours will take their usual course, and in the event of inability to reach a settlement, will be referred to the director general.

If employees coming within the scope of Supplement No. 7 to General Order No. 27, were paid a punitive rate for overtime after the regular day's work, Sundays and or holidays prior to February 21, 1918, the same conditions should apply on the eight-hour basis. Any punitive overtime rate established for employees under this interpretation since February 21, 1918, except as established by the director general is unauthorized and cannot be recognized.

Example (a). Employees working 10 hours per day January 1, 1918, prior to the application of General Order No. 27, and who were, prior to February 21, 1918, paid at the rate of time and one-half for overtime, should be paid as follows:

8 a. m. to 12 noon.....	4 hours work.
12 noon to 1 p. m.....	1 hour for meal excluded.
1 p. m. to 5 p. m.....	4 hours work.
5 p. m. to 7 p. m.....	2 hours at rate of time and $\frac{1}{2}$ time.
11	

Elapsed time.....	4 hours work.
Time for meal.....	1 hour deducted.
Overtime	2 hours.
Total time to be paid for.	11 hours.

Example (b). Overtime commences immediately following the eighth consecutive hour of continuous service, after deducting the meal period. On the basis of pro rata time for the 9th and 10th hour.

8 a. m. to 12 noon.....	4 hours.
12 noon to 1 p. m.....	1 hour for meal excluded.
1 p. m. to 5 p. m.....	4 hours work.
5 p. m. to 7 p. m.....	2 hours overtime, pro rata rate.
7 p. m. to 9 p. m.....	2 hours overtime, $\frac{1}{2}$ times pro rata rate.

Elapsed time.....	13 hours.
Time for meal.....	1 hour deducted.
Continuous service.....	12 hours.
Total time to be paid for.	13 hours.

Example (c). Employees working straight through eight consecutive hours.

6 a. m. to 2 p. m.....	8 hours work.
2 p. m. to 4 p. m.....	2 hours overtime, pro rata rate.
4 p. m. to 6 p. m.....	2 hours overtime, $\frac{1}{2}$ times pro rata rate.

Elapsed time.....	12 hours.
Continuous service.....	12 hours.
Total time to be paid for.	13 hours.

HOURLY RATES.

ARTICLE III.

The employees coming under the provisions of Article III, IV and V of Supplement No. 7 to General Order No. 27, who were on January 1, 1918, prior to the application of General Order No. 27, paid on a basis of 10 hours or more to constitute a day, for whom hourly rates have been

established, as per the above specified Articles, shall, on and after September 1, 1918, the effective date of Supplement No. 7, receive one-eighth of the wages received for 10 hours on January 1, 1918, prior to the application of General Order No. 27, as their basic hourly rate, to which shall be added 12 cents per hour, provided the hourly rate thus obtained shall not exceed the maximum rate specified in the respective articles.

Example (a). Employees coming under the provisions of Articles III, IV and V of Supplement No. 7, to General Order No. 27, on a ten hour basis, rate \$2.50 per day; one-eighth of 250 equals 31.25 cents per hour, adding the increase of twelve cents produces a rate of 43.25 cents under Articles III and IV. Under Article V (a), the rate would revert to the maximum of 43 cents; under Article V (b), the rate would revert to the maximum of 40 cents.

NOTE.—To determine the hourly rate to be paid employees on the hourly basis and for whom ten hours or more were the established hours of service, use the method and example (a) of above Article III; for classes specified in Supplement No. 7, Articles III, IV and V, working less than ten hours, and over eight hours, one-eighth of the wage received for the number of hours recognized as a day's work.

PAY FOR CALLS.

ARTICLE IV.

Employees who are notified or called to work outside the eight consecutive hours, exclusive of the meal period and continuous service, constituting their regular assignment, shall be paid a minimum allowance of three hours for two hours' work or less; if held over two hours, time and one-half will be paid, computed on the minute basis.

Example (a):

8 a. m. to 12 noon.....	4 hours work.
12 noon to 1 p. m.....	1 hour for meal excluded.
1 p. m. to 5 p. m.....	4 hours work.
5 p. m. to 7.30 p. m.....	$\frac{1}{2}$ hours overtime, $\frac{1}{2}$ times pro rata rate.
Elapsed time	10 $\frac{1}{2}$ hours.
Time for meal.....	1 hour.
Break in continuous service	1 hour.
Time for call.....	3 hours, minimum guarantee.
Total time to be paid for..	11 hours.

ARTICLE V.

Exclusive of employees whose regular assignment includes Sundays and or holidays, employees notified or called to work on Sundays and or holidays, will be paid not less than the minimum allowance of three hours, and where no existing agreement or practice is more favorable, such employees will be paid as per Examples (b) and (c) of Article II.

ARTICLE VI.

Payment of overtime at a rate in excess of pro rata will be computed from and added to the pro rata rate.

ARTICLE VII.

Unless acceptable to a majority of employees in a department or subdivision thereof, the meal period shall not be less than 30 minutes or more than one hour.

ARTICLE VIII.

Where unjustifiable inequalities develop or exist in the rates of pay for relatively the same service and responsibility, as between employees of the same class within the respective groups, as specified in Supplement No. 7 to General Order No. 27, the regional directors are hereby authorized to establish uniform rates of pay by zones or districts throughout their respective regions, under the following conditions:

(a) The maximum rates established by Supplement No. 7 to General Order No. 27, must not be exceeded.

(b) Rates established by Supplement No. 7 to General Order No. 27 must not be reduced.

(c) The specified differentials in the established minimum rates for hourly workers, to be preserved.

(d) All rates herein provided for shall be filed by the regional directors with the Board of Railroad Wages and Working Conditions.

Weekly Traffic Report

According to the report on traffic conditions for the week ended December 2 there has been a steady improvement in both freight and passenger movement in nearly every section of the country. The shipment of foodstuffs overseas, for use in the stricken European sections, continues unabated, being given preference over all other commodities. A summary follows:

Eastern Region.—Movement of freight traffic has increased in some districts, but general results indicate decrease in total movement. Change in overseas program has confused movement of export freight somewhat, and efforts are being made, with success, to secure storage facilities. Thirty-five steamers now loading at New York—foodstuffs being given preference. Rail service on frozen beef and provisions placed on three-day basis Chicago to New York to hurry movement. Stockyard facilities consolidated at East Buffalo. Ticket sales indicate considerably heavier travel than for several weeks past, both as to short-haul passengers and through passengers on limited trains.

Allegheny Region.—Passenger travel normal; war workers' travel falling off rapidly, and seven special workmen's trains withdrawn from service. Expected this character of service will be further decreased in December. Further progress in arrangement of interchangeable tickets between the different railroads. Coal production shows increase over previous week, which has resulted in a reduction of stored empty cars. Heavy movement of grain on the way for Baltimore and Philadelphia. Movement of freight generally satisfactory, and no longer necessary to divert traffic from regular gateways. Resumption of car-lot movement from Eastern territory to the South by rail reported.

Pocahontas Region.—Regular travel continues good; passenger earnings showing substantial increase. Large movement of discharged soldiers from camps reported. Unrest among shippers of coal, iron and other materials over uncertainty as to result of cancellation of government contracts. Grain movement via Newport News discontinued to relieve eastern end of the Chesapeake & Ohio. General movement of traffic shows decrease from previous week.

Southern Region.—Passenger travel fairly heavy. Movement of laborers from the powder plants has been quite heavy. Extension of sleeping car service reported to care for winter tourist travel. Movement of demobilized troops from the various camps quite heavy. Prospects seem bright for large winter tourist travel. Through sleeper and coach service arranged to the west coast of Florida. Cotton continues to move slowly, the farmers generally holding for higher prices. Lumber traffic not moving well, with indications of some slowing down of orders. Supply of box cars continues in excess of requirements; supply of flat cars normal; refrigerator car situation easy.

Northwestern Region.—Movement of loaded freight cars shows considerable decrease, particularly in coal and ore. Grain and livestock movements show increases. Decreased activity of Spruce Production Division being felt on the coast. Heavy movement of fruit continues from the Wenatchee and Yakima Valleys, with car supply and service entirely satisfactory. Export situation at Puget Sound ports shows decided improvement. Passenger travel about normal. Heavy soldier travel expected as a result of demobilization.

Central Western Region.—Movement of loaded cars generally shows decrease, but grain and livestock show increases. Permit system for movement of hogs working satisfactorily. Passenger travel on some lines shows improvement, but is below normal for the region as a whole. C. B. & Q. discontinues sleeping car between Denver and Casper, Wyoming. Wabash Railway eliminated local train service with annual saving of 197,974 train miles.

Southwestern Region.—Grain movement to gulf ports con-

tinues heavy. Congestion on T. & P. considerably improved; freight otherwise receiving prompt movement. Forest products increasing in volume. Passenger travel now about normal. Demobilization of troops proceeding actively. Good effect reported as a result of arrangement of passenger schedules for better connections. Work of calling upon representative business men proceeding, and helpful suggestions are being received and acted upon.

War Department.—At New York the accumulation of overseas freight is somewhat above normal, but the unloading during the week exceeded the arrivals by 601 cars. Good progress being made in returning to interior storage points the tonnage which had arrived at the ports, and is not now to be shipped overseas. Transportation conditions generally throughout the country are satisfactory. There is still a little delay in unloading, due to labor conditions, but this is showing some improvement.

Navy Department.—Transportation situation good. Temporary movement of navy traffic is heavy owing to speeding up of contractors in filling their contracts. Congestion in Washington Navy Yard and Indian Head continues, but it is hoped will be absorbed.

Fuel Administration.—Full car supply, and transportation ample. Coke movement good. Production still short of requirements. Bituminous coal production adequate, except in P. R. R. territory. Anthracite still short.

Fuel Administration—Oil Division.—Supply of equipment and transportation conditions remain satisfactory. Not possible yet to make any more definite estimate of the change in volume of traffic.

Food Administration.—Frozen meat and packing house products movement shows considerable improvement, and complaints materially decreased. Live stock—only difficulty reported in regard to car supply of L. & N. R. R., which is having attention. Fruit and vegetables—Florida car situation is being taken care of, but some complaints as to car shortage in New York State and Virginia apple territory, which is being given attention. Heavy movement of export flour being arranged for January shipping. Hog permit system will require some adjustment so that embargo against certain markets will not overtax the free markets.

Exports Control Committee.—Allied governments arranging storage of freight not now wanted overseas. U. S. War Department has made good progress along the same lines. Export freight held at North Atlantic, South Atlantic and Gulf ports shows decrease. Pacific coast situation shows slight increase of cars on hand for Puget Sound ports, and also for the San Francisco district. There is some disturbance of the sailing schedules from those ports.

Troop Movement.—During the past week about 25,000 men have been discharged from camps, and with the exception of one case at Camp Lee, the men have been handled without any inconvenience. Arrangements being made to satisfactorily deal with the troops arriving from overseas shortly.

Provision for Return Journey of Discharged Soldiers

Instructions have been issued by Director General McAdoo to furnish discharged soldiers and sailors, traveling to their points of enlistment, with so-called military meals at the special rate of 75 cents, as granted to men in the service under an arrangement made with the several military departments sometime ago. Special reduced fares accorded discharged soldiers and sailors are on the basis of two-thirds of the normal coach fare applying via route traveled, or two cents per mile, except that the rate per mile would, of course, be higher in those states where the basic fare is more than three cents per mile. By the reduction of the fare and the special meal rate made, it is believed they have been amply provided for, particularly in view of the fact that the additional passage charge for occupancy of space in parlor and

sleeping cars is cancelled on December 1, so that such discharged soldiers and sailors, who are allowed 3½ cents a mile, will have at their command at least a half cent per mile more than they actually need to cover their total expenses in reaching home.

Jurisdiction of Allegheny Region Extended

Director General McAdoo has issued an order extending the jurisdiction of the Allegheny region, under Regional Director C. H. Markham, to include the lines of the Pennsylvania and Baltimore & Ohio, west of Erie, Pa., Pittsburgh, Pa., and Parkersburg, W. Va.

District Director H. A. Worcester, with office at Cincinnati, Ohio, will continue in this capacity for both the Allegheny and Eastern regions, reporting, respectively, to Regional Directors Smith and Markham, in respect to the lines belonging in their region.

The Allegheny region was created because of the vital necessity for stimulating, in every way, the production of coal and coke for war purposes, and, to this end, the Western lines were required to divert the greater volume of their through traffic from the Pittsburgh gateway to the Northern trunk lines, thereby releasing the Pennsylvania and Baltimore & Ohio eastern lines for the handling of their vastly important local traffic. This emergency having passed, it is now possible to restore the integrity of these trunk lines.

The order was issued in Circular No. 66 as follows:

Effective this date the following railroads are transferred from the Eastern to the Allegheny region:

1. Pennsylvania Lines west of Erie and Pittsburgh; Cincinnati Lebanon & Northern Railway and Lorain, Ashland & Southern Railroad, G. L. Peck, federal manager, Pittsburgh, Pa.
2. Baltimore & Ohio Railroad west of Parkersburg and Pittsburgh, and Dayton & Union Railroad, C. W. Galloway, federal manager, Cincinnati, Ohio.

Until otherwise advised by Regional Director Markham, H. A. Worcester, district director, will in respect of these properties continue in his present capacity, reporting to Mr. Markham, and in respect of the lines under his jurisdiction in the Eastern region reporting to Regional Director Smith.

Advances to Railroads

Since April 1, 1918, according to a statement authorized by Director General McAdoo, the United States Railroad Administration has advanced to the railroad and other transportation properties under government control, including loans and payments made to railroad corporations to meet their needs, advances made for operating deficits, and payments on account of the new standardized equipment, the sum of \$515,690,060. Of this sum the amount secured from the \$500,000,000 revolving fund was \$316,206,536. The balance was obtained from the surplus earnings of certain roads and from the American Railway Express Company, \$199,483,524. Of the \$500,000,000 revolving fund, the amount remaining after deducting the above advances to the railroads was \$183,793,464.

Of the \$199,483,524 deposited with the director general from time to time by various railroad lines from their surplus earnings, very much the larger portion was returned to the railroads which had temporarily made the deposits, and the only railroads which have turned over, in individual cases, surplus earnings to the director general up to December 1, 1918, of as much as \$1,000,000 in excess of the amount advanced to them by the Railroad Administration, were the following:

Lou. & Nash. & Atl. Coast Line	\$12,355,168	Chic., Burlington & Quincy	\$3,950,000
Atch., Topeka & Santa Fe	11,200,000	Duluth & Iron Range	3,400,000
Duluth, Missabe & North ern	10,400,000	Chic. & N. W.	3,270,000
Union Pacific System	7,300,000	Central R. R. of N. J.	2,500,000
Northern Pacific	6,777,933	Pere Marquette	1,920,000
Elgin, Joliet & Eastern	6,000,000	Pullman Car Lines	1,800,000
Bessemer & Lake Erie	4,000,000	Rich., Fred. & Pot.	1,540,000
		Los Angeles & Salt Lake	1,500,000
		Atlantic S. S. Lines	1,500,000

The aggregate sums advanced by the United States Rail-

road Administration to all the transportation systems from April 1 to December 1, 1918 (including 121 railroad properties) are shown in the following list:

Penna. R. R. Lines	\$77,670,000	Nor. Southern	\$948,000
N. Y. Central Lines	59,870,000	N. Y. C. & St. L.	854,775
N. Y., N. H. & H.	50,450,000	Atlantic Coast Line	800,000
Balto. & Ohio	24,075,000	Texas & Pac.	750,000
Chic., M. & St. P.	21,675,000	Ann Arbor R. R.	761,800
Ill. Central	16,225,000	Central Vermont	735,000
Erie Railroad	13,900,000	Ind. Harbor Belt	720,000
Southern Pacific Lines	12,500,000	Chic. Grt. Western	707,660
Southern Railway Lines	10,542,650	Wheeling & Lake Erie	700,000
Chic., Rock I. & Pac.	7,700,000	Grand Trunk Western	621,000
Chesa. & Ohio	7,050,000	N. Y. O. & W.	575,000
Delaware & Hudson	6,790,000	Chic. & E. Ill.	537,000
Chic., Bur. & Quincy	6,550,000	Phg. & Shawmut	528,500
St. L. & San Francisco	6,020,000	Lehigh & New England	525,000
Mo. Pac.	5,650,000	Hocking Valley	500,000
Seaboard Air Line	5,610,000	Chic. Ict. Ry.	500,000
Chic. & N. W.	5,230,000	Western Pacific	430,000
Union Pacific Lines	5,000,000	Int. & Grt. Nor.	407,215
Denver & Rio Grande	4,800,000	Gulf, Mobile & Nor.	400,000
Phila. & Reading	4,400,000	K. C. M. & O.	400,000
Wabash Railroad	4,345,000	Chic., T. H. & S. E.	387,913
Northern Pacific	4,000,000	Bangor & Aroostook	373,000
M. K. & T. Lines	3,995,000	Cinn., Ind. & Western	350,000
Buff., Roch. & Phg.	3,670,000	Ft. Worth & Denver City	340,000
Lehigh Valley	3,500,000	Atla., Birm. & Atlantic	339,000
Boston & Maine	2,817,000	Old Dom. S. S. Lines	315,000
Great Nor.	2,800,000	Georgia R. R.	309,000
Nor. & Western	2,500,000	Central New England	300,000
Del. Lack. & Western	2,500,000	Phg. & W. Va.	300,000
Western Maryland	2,372,999	Belt Ry. of Chic.	290,000
Chic., St. P., M. & O.	2,350,000	Midland Valley	270,000
Minn., St. P. & S. S. M.	2,052,000	Rutland R. R.	266,000
Minn. & St. L.	1,895,000	Detroit, Tol. & Iron.	262,775
Chic., & Alton	1,635,000	San Ant. & Aransas Pass	253,000
Chic., Ind. & Louisville	1,525,000	Ft. Dodge, Des M. & Sou.	266,000
Louisville & Nash	1,500,000	V. S. & P.	218,000
Central of Ga.	1,450,000	Chic. & W. Ind.	215,000
St. Louis & S. W.	1,370,000	Chic., P. & S. L.	200,000
Maine Central	1,300,000	Trans-Miss. T. Ry.	190,000
Pullman Car Lines	1,200,000	N. O., Tex. & Mex.	176,100
Kansas City Southern	1,060,000	Ill. Sou.	160,000
Hudson & Manhattan	1,012,000	Duluth, S. S. & Atl.	150,000
Virginian Railway	1,100,000	Portland Terminal	150,000
Term'l. R. R. Assn. of St. L.	1,081,000	Monongahela R. R.	150,000
Fla. E. Coast	1,050,000	Amer. Ref. Transit Line	132,000
Denver & Salt Lake	990,648	Cumb. & Penna.	127,900
Colo. & Southern	975,000	N. O. & Grt. Nor.	120,000
		Balto. & Ohio Ch. Tml.	100,000
		Toledo Terminal	100,000

26 roads receiving in each case less than \$100,000 \$1,030,000
Payments on account standardized engines and cars 87,715,125

Total \$515,690,000

In the following list are shown the amounts advanced by the director general to various railroads during the month of November, 1918:

Penn. Railroad Lines	\$21,050,000.00	Ft. Worth & Den. City	\$255,000.00
Southern Pacific	5,000,000.00	Florida East Coast	250,000.00
Chic. M. & St. P.	4,750,000.00	Ft. Dodge, Des M. & S.	246,000.00
N. Y. Central Lines	4,550,000.00	Minn. & St. Louis	225,000.00
Southern Ry. Lines	3,294,650.00	Old Dom. S. S. Line	220,000.00
Delaware & Hudson	2,000,000.00	Wabash Railroad	220,000.00
Boston & Maine R. R.	1,892,000.00	Chic. Grt. Western	200,000.00
Balto. & Ohio R. R.	1,825,000.00	Cinn., Ind. & Western	200,000.00
Louisville & Nashville	1,500,000.00	Norfolk Southern	188,000.00
Mo., Kan. & Texas Ry.	1,350,000.00	N. Y., Ontario & W.	175,000.00
Pullman Car Lines	1,200,000.00	Pittsburgh & Shawmut	175,000.00
Maine Central	1,000,000.00	N. O., Texas & Mexico	176,100.00
Erie Railroad	1,000,000.00	Colorado & Southern	170,000.00
Chic., St. P., Mpls. & Omaha	1,000,000.00	Atl. Birm. & Atlantic	150,000.00
Missouri Pacific	800,000.00	Rutland Railroad	150,000.00
Ches. & Ohio	800,000.00	Chic., Bur. & Quincy	150,000.00
Atlantic Coast Line	800,000.00	Monongahela R. R.	150,000.00
Illinois Central	750,000.00	Seaboard Air Line	150,000.00
Buff., Roch. & Phg.	630,000.00	Ann Arbor R. R.	148,800.00
Western Maryland	560,000.00	Soo Line	142,000.00
Lehigh & New England	525,000.00	Amer. Ref. Trans. Line	132,000.00
Central Vermont	450,000.00	Chic. & N. W.	130,000.00
N. Y., N. H. & H.	450,000.00	Chic., T. Haute & S. E.	108,461.68
Denver & Rio Grande	400,000.00	Chic., Ind. & L'ville.	100,000.00
Denver & Salt Lake	400,553.01	Cumberland & Penn.	102,900.00
Virginian Railroad	300,000.00	Central of Georgia	100,000.00
Great Northern	300,000.00	Phg. & West Va.	100,000.00
Terminal R. R. Assn. of St. L.	256,000.00	Chic. & E. Ill.	100,000.00

15 railroads receiving sums amounting in each case to less than \$100,000 \$550,500.00

Payments on account of standardized locomotives and cars 29,281,496.00

The total amount of advances to all railroads in the month of November, including payments made on account of new rolling stock for various companies, as shown above, was 94,139,461.53

Total amount received during November from 70 railroads on account of surplus earnings and including \$10,422,968 from American Railway Express Company, was 47,646,069.00

Excess of advances to railroads for the month of November, 1918, over and above amounts received for same period as above was 46,493,391.00

All loans to railroad companies by the director general have been made at the uniform rate of 6 per cent per annum interest.

Committees of Freight Traffic Control Discontinued

C. R. Gray, director of the Division of Operation, announces in circular No. 23 that the emergencies under which

the Committees of Freight Traffic Control at Washington, D. C., having charge of traffic passing through Potomac Yard, Va., Hagerstown, Md., and Hampton Roads, Va., and at Cincinnati, Ohio, having control of traffic passing through various Ohio river gateways, having passed, and there being no longer any necessity for continuance of such committees, they are discontinued, effective December 1. In disbanding these committees, Mr. Gray expressed cordial appreciation of the efficiency and zeal with which they have handled the work assigned to them.

Export Situation

According to the report of the Exports Control Committee for the week ended November 25, owing to the large amount of ocean space available for the clearance of frozen beef and provisions, the rail movement, Chicago to New York, has been placed on a three-day schedule. This arrangement will contribute materially to the relief work now being done by this government in the stricken European areas. Eighty cars of frozen beef were on hand at the terminals the morning of the 26th as against 204 cars on Monday, the 25th. All cars are in process of delivery.

The storage of supplies of war materials intended for the use of the allied nations will release valuable pier space much needed for other traffic. Considerable freight for the account of the British, French and Italian governments on hand at terminals and in transit, and not needed abroad, will be sent to the various storage houses. These commodities include automobile trucks, barbed wire, empty projectiles and shells and lumber.

The total arrivals of freight cars at the North Atlantic ports during the week mentioned were 12,009 as against 12,285 delivered, making an excess of deliveries over receipts at these ports of 276 cars.

There was also a decrease in the amount of freight on hand at South Atlantic and Gulf ports for the week ended November 21 of 153 cars. During the week the Southern Export Committee issued permits covering a total of 951 cars of grain, cotton, steel rails, wire, etc., from interior points to Galveston, New Orleans, Mobile and Savannah.

At the port of New York 37 cars of Russian rails which have been in ground storage have been disposed of, while 200 cars of billets have been ordered to the Erie Railroad for unloading on the ground at its terminals. Most of the commodities held in the cars and on the piers other than recent arrivals are temporarily held up awaiting definite decision from the allied governments as to their final disposition.

At the port of Savannah, Ga., there is an accumulation of approximately 90,000 bales of cotton on the terminals, with six ships in port taking on cargoes, including 70,000 bales of cotton.

For the week ended November 21, there were 391,470 tons of grain in elevators at the North Atlantic ports, while 98,340 tons had cleared. For the same period there were stored in elevators at the Gulf ports 263,076 tons of grain, while 23,074 tons had been cleared.

The situation in the Puget Sound district shows a net increase of 167 cars on hand over last week and an excess of arrivals over deliveries of 189 cars. The San Francisco district shows a net increase of 13 cars on hand, the increase in cars on wheels being 19, in storage 1, while there was a decrease of 7 cars in ground storage. There is also an excess of 13 cars in arrivals over deliveries. This increase is due to the commandeering by the government of Pacific Mail boats and to the order of the Netherlands government to give priority to Java freight on Java Pacific boats.

The changed condition in the war situation has complicated the port situation somewhat, as a great deal of traffic will not now be needed abroad, but all War Department property for overseas will now be sorted out at inland junc-

tion points, and only such traffic allowed to go to ports as is wanted for overseas shipment.

Employees Want McAdoo to Stay

Mr. McAdoo has received hundreds of letters and telegrams expressing regret because of his resignation as director general of railroads and appreciation of the work he has accomplished, from all classes of railroad service, from employees to managers and corporation officers. The employees, however, are most expressive of their desire to retain him as boss and many of them have backed up their words by concrete evidence. In addition to the numerous offers to "chip in" toward an adequate salary, four employees of the St. Louis-San Francisco enclosed certified checks for \$1 each as a Christmas present.

The executive council of the railway department of the American Federation of Labor called on Mr. McAdoo on Saturday after his return from his southern trip, to present resolutions asking him to retain his office, and also another resolution, which was transmitted to the President, proposing legislation which would "provide a salary in keeping with the services rendered." The resolutions also protested against any plan to return the roads back to private control.

Replying to a telegram from J. H. Kirkland, O. E. Summer and H. J. Harrigan, pledging employees of railroads operating out of St. Louis to contribute \$2,000 per month as part of his salary, Director General McAdoo has sent the following letter:

I am genuinely touched by your telegram of the 24th of November, in which you tell me that the employees of the various railroads operating out of St. Louis desire to pledge two thousand dollars per month as part of my salary if I will remain as director general of railroads.

It would be difficult for me to express adequately my appreciation of this evidence of the friendship and regard of the employees of the railroads centering at St. Louis, but I would not permit them to contribute any part of their hard-earned pay toward my salary as director general of railroads. It would not be just to these generous employees for me to accept their kind offer, as I could never in any circumstances permit myself to become a burden upon them or upon any of my friends.

For the reasons stated in my letter to the President it is necessary for me to resign as director general of railroads as well as secretary of the treasury. It is with genuine regret that I part from my friends in the railroad service of the United States. I have enjoyed laboring with them in the service of the country, and I am proud of them for the loyalty and patriotism with which they have worked for their country in this great war.

While after the first of January I shall no longer be their "boss" I shall always be their friend.

In reply to another letter from employees Mr. McAdoo said:

I deeply appreciate your kind telegram of the 25th in which you express regret that I have found it necessary to resign the director generalship of railroads, and I especially appreciate your expression of thanks for what I have done "in behalf of the railroad men, especially the railroad shop foremen."

It has been my earnest effort since I have been responsible for the direction of the railroads of the United States to give all the employees just wages and working conditions. While it is not possible to satisfy every man, nevertheless it is possible to reach a fundamental basis which is satisfactory to the vast majority.

It is with very great regret that I sever the pleasant relationships I have established with the railroad employees of the United States. I have been glad to work with them for our country in this great period through which we have just passed and are passing, and while I am obliged to return to private life and shall no longer be their "boss," I shall always be their friend.

Rules for Inspecting and Testing Stationary Boilers

The Division of Operation has issued Mechanical Department Circular 11 dealing with the rules and instructions for the inspecting and testing of stationary boilers. These rules apply to all steam boilers except those of locomotives or boilers used solely for heating which carry a pressure not exceeding 15 lb. Under the rules the chief mechanical officer of each railroad will be held responsible for the design, construction and inspection of the boilers. The working pressure of the boiler is to be determined by the mechanical engineer and the minimum factor of safety allowed is four. The maximum allowable stress for staybolts is 7,500 lb. and for round or rectangular braces supporting flat surfaces 9,000 lb.

Each boiler is to have at least one safety valve of sufficient capacity to prevent an accumulation of pressure more than 5 per cent above the working pressure and it is to be set at a pressure not to exceed 6 lb. above the working pressure. The working safety valves are to be tested each day the boiler is in use and all safety valves are to be tested every three months and any necessary adjustments made.

The boiler steam gages are to be graduated to at least 50 lb. above the working pressure and they are to be tested once each three months, or whenever necessary. Three gage cocks and one water glass are to be provided, so located that the lowest reading shall be at least 3 in. above the lowest safe water line.

Each boiler is to be subjected to a hydrostatic pressure 25 per cent greater than the working pressure before being placed in service, and not less than once each 12 months thereafter, careful inspection being made during the time the pressure is applied and after. A certified report of the inspection and repairs (Form M D-27) is to be filed with the chief mechanical officer of the railroad and a copy sent to the Division of Operation at Washington. Locomotive type boilers working under a pressure of 125 lb. or more shall have the staybolts tested at least once each month. Those working under a pressure of less than 125 lb. shall have the staybolts tested every three months. Vertical boilers having a working pressure of 100 lb. or less will have staybolts tested at the time of hydrostatic test. No boiler is to remain in service with five or more broken staybolts. The boilers are to be washed once each month or oftener if water conditions require.

An inspection of the boiler under steam shall be made by a competent inspector each six months, who will report to the division and local officer in charge, a certified report of the inspection and repairs (Form M D-26) to be filed with the chief mechanical officer of the railroad and a copy sent to the Division of Operation at Washington.

Fusible plugs must be cleaned of scale not less than once each three months. Suitable valves must be placed between the boiler and steam header where boilers in batteries are connected to the same header. Each steam outlet for the boiler is to be equipped with a suitable valve in operative condition. Feedwater heaters are to be cleaned and inspected once every three months or oftener if water conditions require. The boiler room shall be kept in a clean and sanitary condition. Old clothes, waste, etc., must not be allowed to accumulate in or around the boiler room.

The rules are to become effective January 1, 1919, as minimum requirements, and shall be put in full force on every railroad under Federal control on that date. When a railroad has in effect additional rules which provide greater safeguards, such additional rules may be continued in effect.

Railroad Administration's Embargo Policy

The Railroad Administration has issued a statement explaining its policy with respect to embargoes as follows:

"The difficult experiences of railroads in recent years with serious traffic congestions which clogged transportation, resulted in the Railroad Administration early in the year making comprehensive plans to prevent the movement of freight in the areas where congestion was threatened. This policy was then extended with respect to numerous sorts of traffic destined to difficult areas to prevent the loading of shipments except upon the issuing of permits which would only be granted upon showing that the shipments could be unloaded at destination.

"The consistent carrying out of these policies has resulted in an exceptional degree of freedom from congestion during the period of heavy business this fall and there are now outstanding no general embargoes against the free movement of

traffic. In this respect transportation conditions are much better than for several years past at this season of the year.

"In view of the greatly improved conditions it is the policy of the Railroad Administration to employ embargoes in the most sparing manner possible and with the greatest possible consideration of the public, and it is hoped that the necessity for such steps will be comparatively small. At the same time, if difficult conditions do unexpectedly arise, the only way to deal effectively with them will be through the prompt use of measures which will prevent railroads being clogged through having thrown upon them shipments which cannot be promptly moved and which would only serve to impair the current transportation capacity.

"Due to improved transportation conditions, it is not expected that embargoes will be necessary during the coming winter to anything like the extent to which they were used a year ago. With the experience gained during the past year, and the system which has been worked out during that time, the Railroad Administration is in a position to direct the operation of the roads in such manner as to result in the handling of a maximum amount of tonnage with the least practical interference.

"There is now outstanding a list of standard exemptions to embargoes, which was carefully worked out and issued in February, 1918, with accompanying instructions that commodities listed should be exempted in the order shown where the use of embargo in varying degrees might be necessary. The effect of this has been that much unnecessary work and delay in making shipments has been avoided by the elimination of applications for and issuance of permits in connection with such commodities the nature of which made it necessary that transportation should be arranged. This list, for instance, has recognized in the first instance the necessity of moving live stock and perishables, following in turn have been fuel in its varying forms, food and feed for human and animal consumption, government freight, etc. Experience has proven that this list should be maintained substantially as at present, as it is satisfactorily protecting the public interest."

Judge Lovett Resigns

The appointment of Carter Glass as secretary of the treasury was announced Thursday noon, effective December 16. Mr. McAdoo announced that no decision had yet been reached on the appointment of director general of railroads and the appointment may not be made until next January 1. It is apparent that some difficulty has been experienced in getting the right man to accept the office and Mr. McAdoo may stay a few days after January 1 to complete his work and make his report.

President Wilson had not fully made up his mind when he sailed, and is said to be hesitating as to whether to appoint a railroad man or some other. Mr. McAdoo announced Thursday that he had accepted with great reluctance the resignation of Judge Robert S. Lovett as director of the division of capital expenditure, effective January 1. He will return to the Union Pacific after two months' rest, as president, succeeding C. B. Seger, who has resigned, and his leaving may have had something to do with the delay in appointing a director general, as he was being considered for the appointment. Judge Lovett issued a statement that upon cessation of hostilities he had resolved to relinquish as early as practicable, without inconvenience, his position with the Administration, which he had taken only for the period of the war, and take a rest which his health demands, and that Mr. Seger had received an attractive offer which it was necessary for him to act on without delay. He added: "I should like to say, even at the risk of appearing fulsome, that in my judgment no business agency, public or private, has been more absolutely free from political influences and considerations or more completely dominated

solely by what was conceived to be right and in the public good, than the railroad administration, due to the inspiring example and superb firmness of character of the Director General himself."

Mr. McAdoo said: "No commendation, however strongly expressed, could do justice to him. Judge Lovett has not only had charge of one of the most important divisions of the railroad administration, but has also been an invaluable co-adjutor and counsel in connection with the great problems of unified operation and Federal control of the railroads during the past year."

Bills of Lading for Cotton

The Railroad Administration has issued instructions providing for the resumption of the issue of thorough export bills of lading for cotton under the following conditions:

1. Through export bills of lading will not be issued until and unless a definite contract for ocean carriage has been made with specified sailing date.
2. Representatives of ocean carriers shall secure from the export committee having jurisdiction, the necessary permit for the forwarding of the shipment from point of origin to point of export.
3. Upon receipt of this permit by the forwarding agent, through export bill of lading will be issued, but shipment should not be accepted (and of course the bill of lading not issued) until a reasonable period to move the shipment to the port in time for the specified sailing.
4. Tariffs should be supplemented to provide that the payment of demurrage and storage charges at port shall apply to traffic moving under through bills of lading, commencing the day following the sailing date as fixed in the contract; permits should not be granted to ocean carriers or their representatives except upon their agreement to pay these charges to rail carriers.

Opening of New Coal Mines

D. C. E. Circular No. 15 advises that in view of the discontinuance by the Fuel Administration of control over the opening of new coal mines, it is understood that the question of constructing tracks and other necessary railroad facilities

sought in connection with the opening of new coal mines will be handled in the first instance by the federal manager; if the federal manager recommends the project, he will so report to the regional director; if the regional director so recommends, he will so report to the director of the Division of Operation, who will transmit the papers to the Division of Capital Expenditures with his recommendations.

Explosive Bureau Recognized

The Bureau for the Safe Transportation of Explosives and other Dangerous Articles, according to Circular No. 63, is a recognized agency of the United States Railroad Administration, and the instructions issued by this bureau are with the approval of the director general. Operating railroad officials must take prompt and adequate action to remedy any conditions on their lines that are not in accord with the requirements of the federal regulations as shown by the reports of the inspectors of the bureau.

First Short Line Contracts Signed

Director General McAdoo on December 4 signed the first of the special contracts with the short line railroads, by which they are taken under a modified form of federal control without guarantee of compensation. It was in the case of the Missouri & North Arkansas. He has also signed with the Western Allegheny and the South Georgia.

Committee on Car and Locomotive Appliances

The Committee on Standard Appliances for Cars and Locomotives held its monthly meeting in Washington, beginning Tuesday. The meeting was devoted largely to the consideration of designs for the proposed standard passenger cars.

Women in the Service of the Railways*

**Used on a Great Variety of Work; a Large Proportion
of Them Will Remain in Service**

By Pauline Goldmark

Manager, Women's Service Section, U. S. Railroad Administration.

WOMEN'S employment in the railroad service on a large scale is new. It has really been a wartime innovation due to the shortage of man power—especially in the shops and roundhouses. Last January the total number of women employed was 60,000. By July it had increased to 81,000 with the following geographical distribution: 45,000 in the Eastern district, 8,000 in the Southern and 27,000 in the Western district. By October 1 these numbers were probably increased to a total of approximately 100,000.

Naturally the greatest number are in the clerical and semi-clerical occupations. Of the 81,000 employed July 1, 61,000 were working as clerks of all kinds, stenographers, accountants, comptometer operators, etc. In this class appear women ticket sellers and bureau of information clerks who served the public for the first time; they were found well fitted for this type of work, and special instruction agencies were opened by the government in various states to train them in the intricacies of tariffs and routes.

The next largest group of 4,000, it is not surprising to learn, appears in woman's time honored occupation of cleaning. Women have long been cleaning stations, offices, etc., but now they are employed in the yards to clean coaches and Pullman, both inside and outside, and in the roundhouses

doing the heavier work of wiping locomotives; 800 were so employed. In personal service, including work in dining rooms and kitchens, as matrons and janitresses, 2,000 were found. In the railroad shops, women entered the greatest variety of new occupations. Three thousand were employed ranging at one end of the scale from common laborers, at the other end of the scale to skilled mechanics earning the machinist's or carmen's rate of pay.

Owing to these increases and to the need of caring for the special interests of women, the Women's Service Section was created on August 27, under Mr. Carter, director of the Division of Labor. Women's interests had already received attention in the first orders of the director general. He specified (1) that where women are employed their "working conditions must be healthful and fitted to their needs"; (2) that "the laws enacted for the government of their employment must be observed"; and (3) "their pay when they do the same class of work as men shall be the same as that of men."

These general directions were taken over by the Women's Service Section as its first sailing chart. The scope of its work, it will be noted, is drawn on broad lines, and includes supervision of all the factors affecting the industrial welfare of the women employees. The field agents of the Women's Service Section have been making inspections on the railroads both in the East and West. They are reporting on the exact character of the work required, its suitability for

*Address before Labor Reconstruction Conference, Academy of Political Science, New York, December 6, 1918.

women, the observance of the state labor laws as to hours of work, and, most important, the application of wage rates insuring equal pay for equal work irrespective of sex.

It is perhaps not fully known to this conference that the rates of pay for all the diversified occupations of the great transportation service of this country have been standardized and new increases adjusted for every class of employee. This is now true for positions of the highest skill and responsibility down to the humblest scrub woman. To give a concrete example:—under a special order the pay of coach cleaners was raised 12 cents per hour, the present minimum being 28 cents and the maximum 40 cents. In a conference on women in industry such as this, no point it seems to me needs to be more emphasized than the equality of pay for both men and women in this service. The Railroad Administration put itself squarely on record in its first wage order on this fundamental principle, and is living up to it in regard to every occupation.

Women were undoubtedly first engaged about a year and a half ago, before the railroads were put under federal control, because they could be obtained for less pay than men. They were, for instance, engaged as common laborers at 20 cents=22 cents an hour, at a time when men were receiving 28 cents=30 cents for the same class of labor. With rare exceptions where adjustments are still necessary, the wage orders have absolutely stopped this undercutting of men's wages by women. The Women's Service Section receives many complaints regarding wages, but in the large majority of cases, the grievances are due to incorrect application of the wage orders or to a wrong calculation of the wage increases, rather than in discrimination between men and women.

Soon after women began to be largely employed it became apparent that some of their work was neither profitable nor appropriate. The use of women as section laborers, for instance, in a gang of men working along the tracks at a distance from any house or station was judged to be unsuitable. This was also found to be the case where women were employed as truckers in depots and warehouses on account of the extraordinary physical exertion required of them. In view of the wages now paid it was believed possible to secure men and to transfer the women to some class of work suitable to their strength and with proper regard to their health. The railroads were accordingly asked to discontinue their employment in both these positions.

Similarly, the work of calling train and engine crews was found to be undesirable. The service requires that the caller must find the train or engine man for whom he is looking, who is often asleep at his home, hotel, or boarding house or caboose, where he must be awakened and his signature secured as acknowledging the call. For obvious reasons the railroads were requested to dismiss women from this occupation. Under these orders, on one railroad employing more than 2,000 women, 223 employed as laborers and 193 employed as truckers were transferred to other jobs. To those of us who are accustomed to methods of factory inspection and the difficulty and delay of securing the enforcement of labor laws, it is a new and welcome experience to secure the kind of concerted action which now exists under the federal control of the railroads. The publicity which is needed to secure support for the labor laws, is not required when the government itself is the employer and specifies the conditions of work which it wishes to have maintained.

It does not mean, however, that the Women's Service Section is not busily engaged in securing improvement of conditions of work. The sudden growth in the number of women employed has not been accompanied in many places by proper supervision for health and comfort. It has therefore proved necessary to secure proper equipment and better supervision of all the conditions of work where women are employed. If, for instance, they are working in isolated posi-

tions at night in the round houses or telephone offices, it has been necessary to secure the transfer, especially of young girls, to day time shifts. Owing to seniority rights among railroad employees the last comers are given the most undesirable hours. Last fall there was some indication that women might be employed on night shifts as watch-women. The Women's Service Section has, however, taken the position that older men who may be incapacitated for more active work should be employed on these shifts and the employment of women restricted to the day time hours.

There can be no question that women working as laborers have been doing work involving too great muscular exertion. They have handled lumber, loading and unloading it in the yards. They have also lifted great weights of iron scrap—all work of this kind is now being discontinued.

The variety of occupations is surprising. One of the railroads reports the employment of women in 99 different operations. It follows that the conditions of work show wide variation and the adjustment of local conditions in case after case must be taken up. It is obviously difficult to frame rules of general application at once for such diversity of conditions.

Comparisons with other industries can probably best be made in respect to the women employed in the shops. They are operating a number of machines such as bolt threaders, nut tappers, drill presses, for which no great skill or experience is needed, and which is classed as "helpers work," and rated at the specified pay of 45 cents an hour. They are also employed for highly skilled work. A number have succeeded as electric welders and oxyacetylene burners. They have been found well adapted for work on the air brake equipment and are cleaning, testing and making minor repairs on triple valves. In some places they are now working in a separate group on the lighter weight valves, weighing not more than 40 pounds. After a period of training they are giving satisfaction without the help of any man operator. This is an exceptional achievement which is the result of careful training and the selection of the proper type of worker, as well as a real desire to develop women as a new source of labor. They have responded to this treatment, take a pride in their work and are doing it well. In other places, however, the introduction of women into these trades has been reluctantly undertaken, and they have been given the least possible instruction. Given this spirit, the employment of women at new and unaccustomed tasks is not a success and results only in indifferent and uninterested workers.

Women are found now performing the duties of crane operators, and hammer operators in the shops, of turntable operators in the round houses and of packers of the journal boxes in the yards; they are acting as attendants in tool rooms and storehouses; they are doing block signal work and acting as lever women in the signal towers. This list covers in general the more highly skilled operations in which women have become proficient. The scarcity of male labor has not been sufficient to cause the employment of large numbers in any one of these jobs. On the railroads, as elsewhere in industry, the women of the United States have not felt the compelling pressure experienced in England to leave their wonted occupations and enter new lines of work, but the attraction for the most part lying in the opportunity to earn higher wages than women can usually obtain. A remarkably fine type of woman is now to be seen in many of the shops, who enjoys the greater freedom of her work as compared with factory routine, although in many cases the discomfort, the dirt and exposure is far greater. It remains to be seen whether the women will remain in these jobs to any great extent. The railroads will of course recognize the seniority rights of all their employees returning from military service, but as far as the new employees are concerned, women will have the same privileges as other new employees in retaining their positions or being assigned to other jobs. There can be no doubt that in the clerical and semi-clerical positions, they

have proved their worth and will to a great extent be retained. It has, in fact, seemed questionable under any circumstances to have women working as laborers in yards and round houses in the immediate neighborhood of offices which depend to a great extent on men's labor for their inside force.

One further point must be mentioned in regard to the privileges which the women enjoy. They have been given fair treatment not only in regard to pay, but in regard to complaints. A woman is given a hearing according to specified procedure and can appeal her case respectively to the director of labor or to the adjustment boards at Washington. The representatives of the brotherhoods are members of the boards. Thus the women share the gains secured through years of collective bargaining on the part of the men.

In the post war period, while there is federal control of the railroads, the women will retain their own seniority rights, including the privileges of promotion. The present indications are that they will remain as a permanent part of the great army of clerical workers, rather than in the out of door occupations and in the shops and roundhouses where the environment is oftener unavoidably unsuitable.

In the recognition given to the labor of women, the policies regulating their employment on the railroads forms a new chapter in the industrial history of our country. It may be considered one of our great gains of the war, hastening the day of uniform recognition in all industries of these principles.

Report on Birdsell Collision

THE REPORT OF W. P. BORLAND, chief of the Bureau of Safety of the Interstate Commerce Commission, on the disastrous collision on the Chicago, Burlington & Quincy at Birdsell, Neb., September 10, last, is dated November 23. This collision was reported (as occurring near Alliance, Neb.), in the *Railway Age* of November 15, page 858. Six passengers and five employees (not on duty) were killed, and 27 persons were injured.

Alliance is the point where time is changed from Central standard to Mountain standard. Birdsell is six miles east of Alliance, and Hoffland is 5 miles east of Birdsell. The collision occurred at 2:55 p. m. The trains involved were westbound passenger No. 43 and work train extra No. 714. The passenger train held a clearance card, received at Hoffland, and also a permissive card, received at the same place, directing it to "proceed expecting to find a train in the block between this station and Alliance." The work train had two train orders, neither of which referred in any way to train 43, and therefore, according to the rule, should have cleared the main track (at Birdsell) ten minutes before train 43 was due there. The collision occurred on a curve to the left in a cut about 900 ft. long, with a bank about 15 ft. high on the left, or inside of the curve. The engineman could have seen the work train from a point about 4,000 ft. distant, but nearing the cut his vision was limited to about 400 ft. The fireman could have obtained a good view at a distance of 2,200 ft., and a still better view at a point 1,550 ft. away. The weather was clear. All of the fatalities, with one exception, occurred in the smoking car (wooden), which was between two cars having steel underframes and of much heavier construction.

The testimony of witnesses, as summarized in the report, shows that six or seven men were grossly negligent in this case, not to mention the officers, who, if the discipline was as bad as is here indicated, must have tolerated much loose practice.

Conductor Penninger of the work train admitted that he entirely overlooked train No. 43, saying it was "just a lapse of memory on my part." He received his last train-order at Alliance, about 2 o'clock, when he had only about 33

minutes before the time when he must clear No. 43, and yet he handed the order to the engineman and said nothing. He had with him a telephone which he was intending to set up at the point where the work train was taking gravel from a pit and the telephone seems to have occupied his mind. He had checked the register at Alliance, but without consulting his timetable.

Engineman Ellis of train 714 worked both east and west from Alliance and he carried a watch with two hour-hands, one showing Central time and the other showing Mountain time. The orders received by Ellis in the morning were shown to the fireman but not to the front end brakeman; while those received in the afternoon were not shown either to the fireman or the brakeman. The reason that he did not clear No. 43 was that he was calculating on Mountain time, and thus acting as though it were one o'clock when it was two o'clock. He and the rest of the crew had eaten their dinner at Alliance, where the town uses Mountain time as its standard, and he seems to have gone to work after dinner without giving a thought to the difference in time. He had seen the conductor talking with the trainmaster at Alliance and assumed that they were consulting as to when and where No. 43 should be met; he then looked at his watch and noted that it was 1:15, Mountain time, and calculated that he had one hour and 18 minutes to go to Birdsell and clear the main track. Not until No. 43 came in sight and he had tried to move forward to get out of the way did he realize that he had made a mistake in reading the time. He said that mistakes of that kind were not unheard of and mentioned two cases of enginemans (with watches like his), who had taken the side track an hour earlier than was necessary, to meet trains, not realizing that they had made a mistake of an hour until the conductor called their attention to the fact. He himself had never had an experience of this kind.

Alliance is not the end of a division and is not, said the engineman, the best place to change the time. He and many other trainmen used watches with two hands so as to obviate the necessity of setting the watch each time a transfer was made from one side of Alliance to the other side. His fireman had neither watch nor timetable, and he did not recall having said anything to the fireman about No. 43.

Fireman Peters of this train had made only ten trips, and had had no previous railroad experience. When examined, on entering the company's employ, he had received a book of rules but no timetable. He did not know what time train 43 was due at Birdsell.

Brakeman Howard of the work train understood that they were working on Central time and knew that No. 43 was due; he knew that his train was on the main track on the time of No. 43, but assumed that the conductor and engineman had in their possession an order giving them some right over 43.

Brakeman Ogle of the work train was making his second trip as a brakeman and had had no previous railroad experience, except six months in the bridge gang. At his examination he had received a book of rules but no timetable.

Conductor Cotant of train 43 thought there were no rules restricting the speed of a train running on a permissive card, but thought that an engineman in such case should proceed with caution, particularly in approaching stations and at places where the view was obscure.

Engineman Fitzpatrick of train 43 said that he was running about 45 miles an hour and that he first saw the work train when he was within 125 ft. of it. His understanding of the rule concerning permissive cards was that he and the fireman "should keep a good lookout and still keep the train going in good shape." He showed the permissive card to the fireman but did not tell him to keep a good lookout around curves. He said that "at one time it had been the practice to slow down absolutely at obscure places when

running on a permissive card; but this resulted in constantly losing time and they were instructed to go ahead with their trains and only look out for a flag or an indication from the train in the block."

Fireman Ogden of train 43 first saw the work train when only 100 ft. from it, and after the engineman had called to him. The reason that he did not see it sooner was that he had gone into the tender to dig down coal. He admitted that it was his duty to keep a lookout on curves.

Conclusions. The report gives the cause of this collision as the presence of the work train on the main track without authority and without flag protection, for which Conductor Penninger and Engineman Ellis are responsible. It is held that if the conductor had examined his timetable while checking the register at Alliance, he would not have overlooked No. 43; and if the engineman had consulted his timetable, prominently inscribed "Central time east of Alliance, Mountain time west of Alliance," these words must have attracted his attention. Brakeman Howard was familiar with the rules and his failure to call the attention of the conductor

and the engineman to train No. 43 was inexcusable. Fireman Peters and Brakeman Ogle, inexperienced men, were apparently working without proper supervision or instruction.

"The evidence indicates that the manual block system, as operated on this division, affords little or no protection against collisions between trains moving in the same direction. * * * Engineman Fitzpatrick, in running at full speed, apparently was following the prevailing custom on this division; though a rule on the timetcard says that moving a train under caution or under control means that the speed must be such that the engineman shall be able to stop within the range of vision. "This rule obviously has application to the movement of a train when running under a permissive card notifying it of the presence of a train in the block ahead. There is urgent need of a change in block signal practice so as to make it conform to the principles of safety which are intended to be embodied in the block system."

Conductor Penninger and Engineman Ellis were experienced men with good records. None of the men had been on duty more than 8½ hours.

A Double Track Cut-off Line Completed by the A.E.F.

By Its Operation Much Time Is Saved in Transportation
Between the Base Ports and the Front

A DOUBLE TRACK CUT-OFF line by means of which much valuable time is being saved in the transportation of men and supplies in France was one of the many projects in the construction program of the American Expeditionary Forces. The cut-off is approximately 5.75 miles in extent and it is located in the zone of the Services of Supply. Its construction involved 160,000 cu. yd. of cut,

of the French tracks, was avoided and the connections were taken off from opposite sides of the right of way. On one side the new line was carried up on a fill to a sufficient height to permit of an overcrossing of the main line by means of a steel girder bridge. Beyond the bridge the two tracks converge to standard double track construction.

The largest fill on the line contains 180,000 cu. yd. of material. The placing of this fill involved the construction of a timber trestle 40 ft. in height, the material for which was practically all secured by detachments of forestry regiments working French timber lands hundreds of miles from the site. The great part of the fill was secured from a cut to the west of the embankment, being moved by steam shovels and transported to the site in American made side dump cars. The remainder of the fill was secured from borrow



Derrick Placing One of the Sixteen 50-ft. Steel Girders

414,000 cu. yd. of fill in addition to a bridge one-half mile long spanning an important French river. Its principal purpose was to provide the means for running trains around the city of Navarre, where several French railroads converge, thus avoiding delays in train movements arising from the congestion of traffic in the city. The cut-off effected the important saving of 6 to 8 hours on every train in addition to five miles in distance between the base ports and the rail heads, back of the front, and in operation east and west-bound trains will skirt the terminal and yards passing the city in a direct line, avoiding a long loop into the city which had to be followed prior to the improvement.

In planning the connection between the cut-off line and the existing double track main line a double track turnout which would have made necessary a crossover cutting one



Wheel Scrapers Were Used Extensively in Filling

pits near the base of the embankment and moved to place with wheel scrapers. Approximately 300 horses were employed in the scraper operations.

The bridge portion of the cut-off, 2,190 ft. long, is made up of ninety-nine 14-ft. timber spans and sixteen 50-ft. steel girder spans. This is the longest bridge which engineers of the American Expeditionary Forces have built in France.

The timber spans are supported by pile trestle bents, while the longer steel girders rest on clusters of 43 piles. Two pile drivers of the steam-hammer type worked from each end of the bridge toward the center of the river, while a drop hammer worked westward from the shore end. In this structure nearly 2,000 piles 50 ft. or so in length had to be driven.

While the 180,000 cu. yd. fill and the river bridge are the outstanding features of the job, other smaller structures had to be built. For example, there is a canal which had to be spanned by a steel girder bridge, several highways where overhead and undergrade crossings had to be built, and a number of roads which called for relocation and rebuilding.

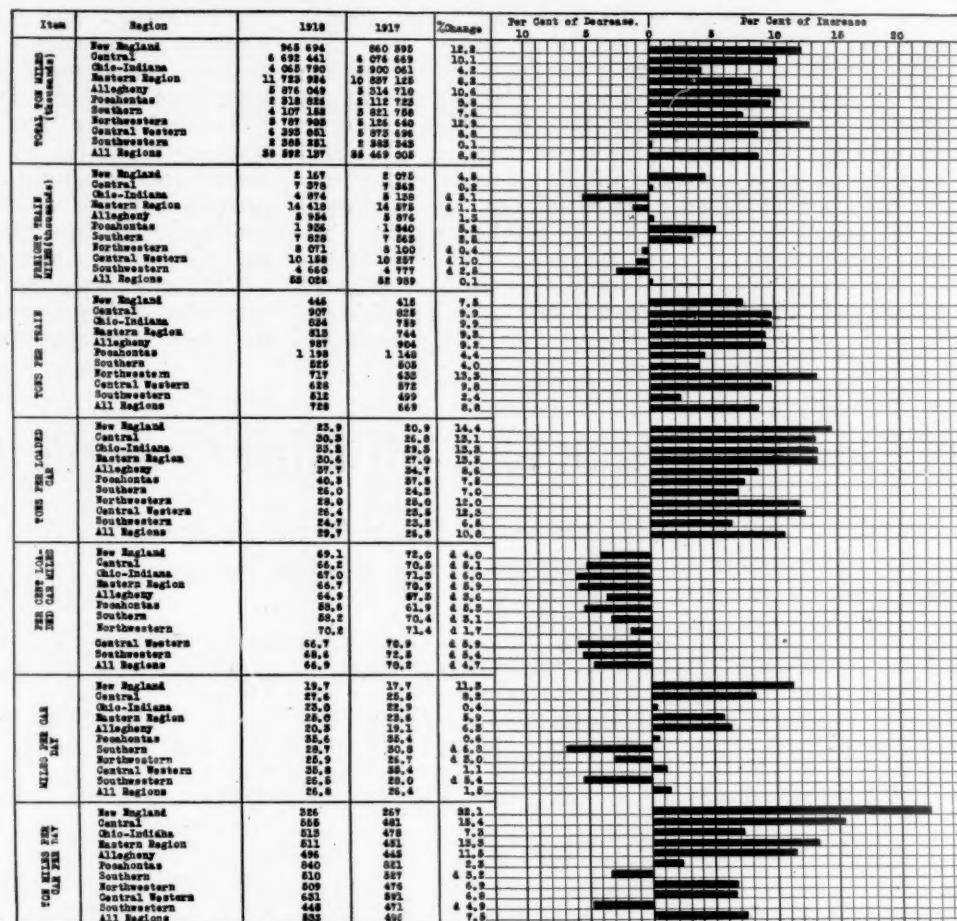
This project was completed early in October. The construction was carried on under the direction of the chief engineer, American Expeditionary Forces, through the Division of Construction and Forestry, by the 16th Engineers (Railway), the regiment recruited in Detroit, and under the direct charge of Lieut.-Col. G. H. Webb, formerly chief engineer of the Michigan Central.

Freight Train Operation

THE RAILROADS under federal control during the month of September handled 9.5 per cent more revenue ton miles than were handled during September, 1917, according to the monthly report of freight train operations compiled by the Operating Statistics Section of the Railroad Administration, and for the nine months, January to September, inclusive, the increase in revenue ton miles was 2.1 per cent. The report shows continued increases in the tonnage

per train and per loaded car both for September and for the nine months, and while the average miles per car per day showed an increase of 1½ per cent in September, the average for the nine months shows a decrease of 6.7 per cent.

PERCENTAGES OF INCREASE OR DECREASE IN FACTORS INFLUENCING FREIGHT TRAIN AND FREIGHT CAR EFFICIENCY, MONTH OF SEPTEMBER, 1918, COMPARED WITH THE SAME MONTH OF 1917.



operations compiled by the Operating Statistics Section of the Railroad Administration, and for the nine months, January to September, inclusive, the increase in revenue ton miles was 2.1 per cent. The report shows continued increases in the tonnage

The average miles per locomotive per day decreased from 65.5 to 65 in September and from 66.8 to 65 for the nine months, a decrease of 2.7 per cent. The percentage of loaded car miles continues to show a decrease both for September and for the nine months. There was an increase in ton

OPERATING STATISTICS

Item	September		Increase or Decrease		Nine Months, Jan.-Sept.		Increase or Decrease	
	1918	1917	Amount	Per cent	1918	1917	Amount	Per cent
Average miles operated—single track.....	226,472.90	226,608.39	*135.49	*a	228,692.39	228,431.75	260.64	0.1
Freight train miles.....	53,025,993	52,988,930	37,063	a	481,386,409	491,614,845	*10,228,436	*2.1
Loaded freight car miles.....	1,299,365,739	1,325,063,036	*25,697,297	*1.9	11,261,598,155	11,995,524,502	*733,926,347	*6.1
Empty freight car miles.....	642,728,976	563,772,820	78,956,156	14.0	5,314,972,149	5,171,811,009	143,161,140	2.8
Total freight car miles—loaded and empty.....	1,942,094,715	1,888,835,856	53,258,859	2.8	16,576,570,304	17,167,335,511	*590,765,207	*3.4
Freight locomotive miles.....	61,458,876	61,088,176	370,700	0.6	559,312,091	567,485,604	*8,173,513	*1.4
Revenue ton miles.....	35,763,380,794	32,666,038,568	3,097,342,226	9.5	300,327,201,897	294,127,393,178	6,199,808,719	2.1
Non-revenue ton miles.....	2,828,756,577	2,802,966,284	25,790,293	0.9	25,979,630,234	26,625,964,513	*646,334,279	*2.4
Total ton miles.....	38,592,137,371	35,469,004,852	3,123,132,519	8.8	326,306,832,131	320,753,357,691	5,553,474,440	1.7
Average number of freight locomotives in service.....	31,512	31,090	422	1.4	31,544	31,126	418	1.3
Average number of freight locomotives in or awaiting shop.....	4,669	4,199	470	11.2	4,698	4,463	235	5.3
Average number of freight cars in service.....	2,414,218	2,385,301	28,917	1.2	2,433,144	2,345,729	87,415	3.7
Average number of freight cars in or awaiting shop.....	149,563	139,817	9,746	7.0	138,501	133,697	4,804	3.6
Tons per train.....	728	669	59	8.8	678	652	26	4.0
Tons per loaded car.....	29.7	26.8	2.9	10.8	29.0	26.7	2.3	8.6
Average miles per locomotive per day.....	65.0	65.5	*0.5	*0.8	65.0	66.8	*1.8	*2.7
Average miles per car per day.....	26.8	26.4	0.4	1.5	25.0	26.8	*1.8	*6.7
Per cent of loaded car miles.....	66.9	70.2	*3.3	*4.7	67.9	69.9	*2.0	*2.9
Per cent of freight locomotives in or awaiting shop.....	14.8	13.5	1.3	9.6	14.9	14.3	0.6	4.2
Per cent of freight cars in or awaiting shop.....	6.2	5.9	0.3	5.1	5.7	5.7	...	...
Total ton miles—								
Per freight locomotive per day.....	40,812	38,027	2,785	7.3	37,895	37,747	148	0.4
Per freight car per day.....	533	496	37	7.5	491	501	*10	*2.0
Per mile of road per day.....	5,680	5,217	463	8.9	5,227	5,144	83	1.6

* Decrease.

miles per mile of road per day amounting to 8.9 per cent for the month of September and to 1.6 per cent for the nine months. The total ton mileage per freight locomotive per day shows a slight increase for nine months and an increase of 7.3 per cent for September. The ton miles per freight car per day showed an increase for September but a decrease for the nine months. The statistics are reported both by regions

and districts and by the combined totals. The largest increase in revenue ton miles for September was shown by the Northwestern region, an increase of 14.2 per cent. For the nine months' period the largest increase was shown in the Southern region, 8.3 per cent. The combined figures for September and the nine months' period as compared with the corresponding periods of 1917 are shown in the table.

Railway Fire Protection Association Convention

First Meeting Since Federal Control Addressed by Manager Fire, Loss and Protection Section

THE FIFTH ANNUAL MEETING of the Railway Fire Protection Association took place at the Hotel Sherman, Chicago, on December 3, 4 and 5, with an attendance of nearly two hundred. The convention was the first since the inauguration of government control as well as the first since the unification of railway fire prevention work under the Fire Loss and Protection Section of the Railroad Administration. B. S. Mace, superintendent of insurance of the Baltimore & Ohio and president of the association, presided. In the enforced absence of G. L. Ball, secretary and treasurer, R. R. Hackett, insurance inspector of the Baltimore & Ohio, acted as secretary. By far the most important feature of the program was an address by Charles N. Rambo, manager of Fire Loss and Protection Section, who spoke on the co-operation expected of the individual railway fire protection organizations by the Railroad Administration. Following is an abstract of his remarks:

Rambo Outlines Plans of his Section

In operating the railroads, the director general, as an economic matter, instructed that the carriers should not renew any fire insurance on property under federal control or any liability in connection with the operation or use of such property. This meant that the former average annual insurance carried, amounting to slightly over two billions of dollars has, or will eventually expire. This insurance indemnity did not represent the full value of the properties owned by the railroads or of their liabilities to others for property in transit. In the majority of instances, the railroads insured only a percentage of actual value and in other instances did not purchase or carry any insurance whatever, so that the measure of insurance value does not represent to any degree the value of railroad properties which might be subjected to fire loss or damage.

The director general in ordering the termination of insurance, however, called particular attention to the inspection of properties with the observance of measures for prevention of loss which it would be desirable to adopt, as the insurance companies had, to a large extent, heretofore performed inspections as a part of their service as insurers and for the mutual protection of themselves and the railroads insured.

A questionnaire was sent out by the director general to all railroads, calling for statistics and information, including the organized work incident to fire protection. From the many replies received it was indicated that there was no uniform or well defined method and that with the exception of a few of the larger roads, fire prevention work and its supervision was being given very little attention unless the insurance companies happened to present suggestions through which they believed the properties should benefit.

The director general recognized the large annual fire waste in the United States, estimated at approximately \$300,000,000 per year and especially the annual fire waste on railroad

properties which, from statistics furnished from 160 Class I roads and 83 switching and terminal roads averaged \$7,056,500 per year over a three-year period, this figure including amount of losses experienced in excess of insurance carried.

With the figures reported on the roads under federal control, the average annual fire loss for the last three years has meant that approximately twenty-seven dollars has been lost by fire per mile of railroad and that for every day in the year there was an average fire waste of \$19,333 on railroads, the average annual loss to property value insured being 34.3 cents per \$100.

Recognizing that a large majority of fires are preventable and are due to carelessness or failure to provide adequate fire protection measures, he brought about the establishment of the Insurance and Fire Protection Section of the United States Railroad Administration, now known as the Fire Loss and Protection Section in order to standardize practices as far as possible and co-ordinate the work.

A comparison of international fire losses in the year preceding the war proves to us that we have been a wasteful nation in permitting the destruction of our properties and materials by fire as we have in many other directions, and it would appear that there has been no greater needless and heedless waste than that produced by fire. The average loss of seven European nations and the United States was a little less than 50 cents per capita. Our per capita fire loss was approximately \$2.10, so that the average of seven European countries without the United States was less than 27 cents.

These statistics emphasize our nation's carelessness. We must be awakened to the fact that the fire menace and fire losses mean an absolute waste, and insurance is merely a means for distributing the loss, not of replacing the actual physical property destroyed, as the wealth destroyed has actually passed out of existence.

At the outset the director general issued in the form of a fire prevention poster, a notice or request which I believe, in a nutshell, places the guarding of the properties against loss by fire very clearly before the officers and employees of railroads, and which I believe is of sufficient importance for me to quote as follows:

1. All officers and employees of railroads should be on guard at all times, show their loyalty and co-operation, and through earnest efforts and constant vigilance, accent their responsibility toward the elimination of the unnecessary fire loss to railroad properties.
2. Let each employee consider himself a fire inspector or warden as far as his particular duties are concerned, and in so far as any dangerous condition may come to his notice; and let each one have in mind constantly that through no act of his, or through no lack of action on his part, will he create a fire hazard or allow one to pass unnoticed.
3. If you know of or see a fire danger or hazard, report it immediately to your superior in charge of your department.
4. Keep in mind constantly that the first requisite in the prevention of fire waste is good housekeeping—meaning cleanliness. Remove accumulations of rubbish and waste, and guard inflammable property and materials from all sources of danger by fire. Guard against not only physical defects but neglects brought about through carelessness, indifference, ignorance, or wilfulness on the part of any person. Smoking is a general habit; guard carefully against hazards and careless practices incident to it.

5. Railroad operation is in its nature so continuous that destruction of property used in it leaves marked consequential losses. The acceptance of individual responsibility will prevent not only large waste of property which cannot be replaced today, but temporary loss of employment through the destruction of facilities, and serious interference with operations.

ORGANIZATION FOR FIRE PREVENTION UNDER FEDERAL CONTROL

Primary attention to fire prevention is to be given by each railroad under federal control through its operating officers and under them, if the railroad is of a sufficient size to warrant it through the establishment of fire protection and fire prevention departments, under the supervision of men trained in the study of those questions and under whom will be the individual railroad's staff of fire prevention inspectors. These inspectors will travel over the railroad's properties, giving careful study to the fire dangers and making periodical inspections of all properties with frequent inspections of the larger properties, seeing that everything is being done that can possibly be done to eliminate fire dangers.

These departments of the railroad are the educational channels, doing their work directly under the management of their road and with the officers, agents and employees; recommending, suggesting and conferring in connection with the correction of bad practices or the reduction of dangers. The training of the human element is the great problem to be contended with and a constant vigilance is necessary to overcome the frequent thoughtless, careless, or even negligent habits so often found. With the officers of the railroads giving the fire prevention work their active co-operation, regarding it of prime importance to the safeguarding of their operations, much may be accomplished.

The fire protection organizations of the railroads, through the federal or general managers, will come under the direction and authority of the regional directors of their district. The Fire Loss and Protection Section of the Central Administration will deal primarily through the regional directors, but will be of such co-operation through the federal or general managers and the various fire protection departments as may be necessary or desirable. The staff of general inspectors of the Fire Loss and Protection Section will act in an advisory and co-operative way through visits to the various regions and the large and important properties therein to assist the local forces in the proper protection of the properties.

PREVENTIVE MEASURES

The essential features to be considered by those who study the problems of fire protection are:

First: Construct buildings on fire-resisting lines so as to minimize the possibility of fire starting and prevent its unrestricted spread and opportunity for serious loss. The proper time to guard buildings against loss by fire is during their construction.

Second: Prevent fires from starting through the reduction and safe-guarding of common hazards and those inherent to the particular property.

Third: Provide adequate private and public facilities for extinguishing a fire, should it start, and be prepared to fight a small fire before it becomes dangerous. All of the expense met with in the installation of fire fighting equipment, water supplies, etc., can be counted as naught if the men to promptly use it are not trained and ready, and if it is not properly cared for and kept in serviceable condition.

One of the first demands in connection with the study of fire prevention is that of good housekeeping, involving such detailed enforcements as will insure cleanliness throughout a property as a matter of daily duty and through which means the possibility of fires may be largely avoided. This can be accomplished by the appointment of employees in each portion of a property with such authority as may be necessary to see that cleanliness is observed and through the posting of official notices in prominent places requiring the carrying out of fire protection rules so prepared as to meet conditions usually found in railroad properties. . . . Approximately seventy-five per cent of the fire loss could be prevented by the general exercise of constant care and by seeking out and removing unnecessary hazards.

FIRE FIGHTING APPARATUS

The subject of fire extinguishing apparatus is necessarily one of great detail and brings out the study of the extent and character of the properties and the natural conditions surrounding them, and their use and occupancy. The class of appliances will necessarily cover a wide range, starting however, with the idea of having an ample supply of water to meet the maximum of conditions that might arise. Careful study is necessary to determine the specific character of fire extinguishing devices required to meet the demands of each class of property. These include the use of automatic sprinkler protection which is the best class that may be considered and which is recognized as the only one producing the maximum of efficiency and success in controlling fires; water mains and fire hydrant systems under ample volume and pressure from public or private reservoir or other source of supply, with incidental fire pumps, elevated tanks, standpipes, fire hose, fire extinguishers, steam jets, sandpails, water barrels and pails; all of which must be studied and installed with a due regard to their relative values. An important fire fighting agency on railroad properties is the locomotive and yard engine used at terminals and large yards remote from public protection, so equipped for supplying water under pressure with the aid of fire hose as to give good service in event of fires in rolling equipment and its lading. Tug boats equipped with fire pumps are also a valuable factor in fighting fires on waterfront properties. . . .

Rigid and systematic inspection of all fire apparatus should also be made by specially delegated employees on each property, preferably members of fire brigades, at least once a week; everything, including the smallest piece of apparatus, should be in its place and in good order ready for use, and a report of such inspection should be made to those in authority on each property. In connection with fire extinguishing apparatus, a study of its utility should be given, as well as the care of appliances, that we may be assured of it being an approved and well tested and tried device, the durability to be studied in connection with the economies.

Fire alarm systems are an important factor, particularly in large properties, to obtain prompt use of fire appliances, through the immediate summoning of drilled employees and municipal departments.

The success of fire prevention must be due entirely to well-organized forces. The organization of the fire prevention and protection work on railroads must be undertaken with intelligence and a due regard to local conditions. It is necessary that the importance of the work be recognized, by all in authority, and in charge of property. Fire prevention requires thorough publicity that all employees may be advised of its scope, and that education respecting it should penetrate all parts of a system in order that the old and prevalent idea of "security" against fire dangers may be eliminated. . . . Fires, like accidents, happen at unexpected times. Continued vigilance is therefore essential and without a general co-operation and knowledge of dangers, we cannot escape their consequences. . . . There has been sent to the various railroads a form giving the causes or origin of fire losses, that they may be studied by the inspectors and others and used as a guide for compiling the losses that may be incurred. A knowledge of the causes of losses is essential to the proper comprehension of fire dangers.

Report of Committee on Statistics

The report of the Committee on Statistics was read by E. B. Berry, supervisor of fire protection, Southern Railroad, chairman. It follows in part:

Of the 75 railroads (representing 186,540 miles) holding membership, 49 railroads (representing 141,149 miles) reported 5,701 fires in 1917, with a total loss of \$4,889,146, an average loss per fire of \$857.59, and an average loss per

mile of road of \$34.47. This compares favorably with \$921.28, average loss per fire, and \$38.71, average loss per mile of road, reported for the year 1916.

It is practically impossible to present for your consideration comparative figures owing to the fact that although the same number of roads sent in statements, the mileage reported in 1917 is 21,044 miles greater than reported in 1916. The information is sufficient, however, to show that the average fire loss on railroads is being maintained with a very unsatisfactory degree of consistency.

In respect to the origin report for 1917, you will again find five origins caused 65.02 per cent of the total number of fires, locomotive sparks causing 22.04 per cent; unknown causes accounting for 21.05 per cent; heating appliances, 11.37; adjacent property, 6.14; locomotive hot coals, 4.42. The amount of loss charged to these origins is \$2,971,727, or 60.59 per cent of the total.

As in the past, the property subject to the most consistent and uniform loss is rolling stock, which suffered 38.72 per cent of the number of fires and 19.74 per cent of the loss. Bridges and trestles sustained 9 per cent of fires and 2.97 per cent of the loss, merchandise in transit 8.91 per cent of fires and 15.26 per cent of the loss. Piers, wharves, etc., sustained .23 per cent of fires with 23 per cent of the total loss. While the increased tonnage handled by the railroads in 1917, as well as the increased value of tonnage and building cost, gave a relative increase to the carriers' liability for fire loss, the only encouraging feature of this report is the reduction of \$4.24 in loss per mile of road.

Inspection Bureaus and Inspectors

R. H. Newbern, superintendent of insurance and safety of the Pennsylvania Railroad, read a paper on What Inspection Bureaus Should Do and What Inspectors Should Be. He stated that all plans for the construction work which will be undertaken by the railroads now that the war is over, should be submitted to the insurance departments for criticism to insure proper location of fire lines and hydrants, to specify the size and class of mains and fittings, to lay out watchman's service, fire alarm systems and to safeguard exposures by the installation of cut-offs, fire doors and fire shutters, etc. All requisitions for fire equipment should be submitted to the insurance department by the purchasing department for approval, to permit standardizing the equipment as well as to effect economies in its purchase.

He emphasized the importance of employing high grade fire inspectors and enumerated essential qualifications which such officers must have. He cited the records of the Pennsylvania Railroad as justifying the development and maintenance of a well-organized fire inspection bureau. For many years the road has issued annual statements showing the number of fires extinguished by the employees with the company's fire apparatus. In 1917, there were 334 fires so extinguished with a loss of but \$12,500 in properties having a valuation in excess of \$10,000,000. For a long period the Pennsylvania Railroad has had an average fire loss of less than 10 cents per \$100 risk. It is estimated that the annual expense for fire protection on the Pennsylvania System is about \$400,000, which is slightly greater than the annual fire loss.

Other Reports and Addresses

A paper on Guarding and Watchmen Problems at Terminals and Yards was presented by H. A. Bruck, Superintendent of Insurance, Western Maryland. An abstract of this paper will appear in a later issue.

Robert Scott, superintendent of insurance and safety of the Atlantic Coast Line, read a paper on how to maintain interest in fire prevention, an abstract of which will be published later.

R. H. Aishton, regional director of the Northwestern region, addressed the convention on Wednesday morning. He

pointed out the fact that fire losses are operating charges which the United States Government and therefore the public rather than private corporations must bear. From this position, it should be to the interest of the public to cooperate in the reduction of these losses by proper preventive measures. Mr. Aishton also urged increased interest in the enforcement of rules which past experience has shown advisable to eliminate unnecessary hazards. It is the duty of the insurance inspectors to see that these instructions are followed. Mr. Aishton stated further that the director general and the regional directors are much interested in the work of fire prevention and intend to get behind it just as they have the movement of munitions and troops.

L. F. Shedd, superintendent of safety and fire prevention of the Rock Island Lines, delivered an address on The Advantages of Having a Fire Loss and Protection Section.

C. P. Beistle, chemist of the Bureau of Explosives, read a carefully prepared technical discussion of the various types of portable extinguishers which do not require special skill or knowledge in maintenance and use.

J. E. Martin, Jr., engineer, insurance department, Emergency Fleet Corporation, read a progress report of the Committee on Fire Protection in Passenger Equipment in the absence of G. L. Ball, chairman. There was considerable general discussion of this report. While there was unanimous condemnation of hand grenades and dry powder as extinguishers, there was divergence of opinion regarding the relative merits of carbon tetrachloride and acid and soda machines. Among the objections to the acid and soda machine was that it was subject to corrosion and freezing and was not absolutely safe, occasionally bursting and resulting in injuries to employees or passengers. The carbon tetrachloride machine, on the other hand, is criticized because of its small capacity, its small discharge openings which are subject to clogging and the tendency of its working parts to clog after long use. Considerable difficulty has also been experienced in protecting the latter type of machine from theft by automobilists.

Robert Scott, vice-chairman of the Committee on a Hand Book on Railroad Fire Prevention and Protection, reported that Mr. Rambo, the chairman, had undertaken to prepare a handbook in his capacity of manager of the Fire Loss and Protection Section of the Railroad Administration, and that this publication would soon be distributed among fire prevention officers of the railroads.

W. F. Hickey, superintendent insurance department, New Haven, read the report of the Committee on Fire Prevention and Protection of Wharves and Piers, of which he is chairman. It was a comprehensive and detailed discussion of proper construction of piers and extinguishing equipment and of the organization which should be maintained to prevent fires.

E. Wanamaker, electrical engineer, Rock Island Lines, read a paper on handling acetylene welding outfits in shops. An abstract will appear in next week's issue of the *Railway Age*.

Hale Holden, regional director, Central Western Region, addressed the association in the afternoon of the second day's session. He stated that it was fortunate that the fire protection association was organized several years ago, as it offers the Railroad Administration an opportunity to disseminate information and secure unified action through an agency already well established. He commended the work of the association, saying that next to safeguarding life and limb the conservation of railroad property from loss through fire was the most important duty of railroad men, the director general and the regional directors will energetically assist in promoting fire prevention. Regardless of the final solution of the railroad problem the elimination of fire losses will receive increased attention. It is a permanent part of railroad work.

C. N. Rambo was given the chair for a time to answer inquiries of members regarding work of the fire loss and protection section. He explained the two types of report forms he has prepared to be filled out and sent him monthly, one covering inspections made and other fire losses incurred.

The Membership of the Association

The report of the Executive Committee, read by Robert Scott, chairman, showed an increase in members during the past year of 14 and a loss through resignations of 10 members. The total membership to date is 122 men representing 67 railroads, one electric line, also the Railroad Administration, the Emergency Fleet Corporation, and the U. S. Steel Corporation. Nine members were reported with the colors.

Encouragement from the Director General

A telegram was received during the first day's session from Director General McAdoo commanding the Association for its past work and pointing out its great opportunity for increased usefulness in the future as an agency for reducing the irretrievable economic loss resulting from fires on our railroads. In reply the Association telegraphed the director general its appreciation of the words of encouragement contained in his message and the assurance that every effort would be made by the organization and its members individually to make the program of the Fire Loss and Protection Section successful.

The report of the Committee on Fire Prevention and Protection in Terminal, Classification and Storage Yards, read by P. A. Bissell, general fire inspector of the Railroad Administration, was an elaboration of a report on the same subject submitted last year and abstracted in the *Railway Age*. In the discussion of the report, fire cars were highly recommended by those who have used them. E. W. Osborn, insurance inspector of the Northern Pacific, stated that but for fire cars the road's loss in the recent forest fires in northern Minnesota would have been a half million more. They did especially good service in the large yard in Duluth. This yard, containing 2,000 cars, was attacked by the fire at one extremity, and by dropping a suction hose into the bay from a fire car, the yard forces were able to cut off the conflagration. A progress report of the Committee on Oil Burning Appliances, B. S. Mace, chairman, was read. It contained tentative rules for storage and use of fuel oil and for construction and installation of oil burning equipments in railroad shops. Robert Scott, Atlantic Coast Line, was elected president of the association for the coming year; E. B. Berry, Southern Railroad, was elected vice-president, and G. L. Ball, Frisco, was re-elected secretary-treasurer.

Aero Alarm Company, New York and Seattle, had an exhibit of automatic fire alarms at the Hotel Sherman for the benefit of members of the association.

Convention of Railway Telegraph Superintendents

Censoring of Messages and Question of Standards for Railroad Administration Considered

THE ANNUAL MEETING of the Association of Railway Telegraph Superintendents was held at the Hotel Sherman, Chicago, on December 5 and 6. M. H. Clapp, manager of the Telegraph section of the United States Railroad Administration and president of the association, occupied the chair, and W. L. Connelly (N. Y. C.) acted as secretary of the meeting.

The president, in his opening address, discussed the changed conditions which began to occur after the last annual meeting which was held at St. Paul, Minn., in 1916. (*Railway Age Gazette*, June 30, page 1157.) These conditions which became more abnormal after the entrance of this country into the war entailed extra work on the members as railroad officers, which resulted in but few being able to find time to devote to association affairs. The annual meeting which was to have been held in Washington, D. C., in 1917, was finally postponed to conserve time and resources. The executive committee, however, issued a call for a special meeting, which was held at Chicago on November 22 and 23, 1917. At this meeting brief reports from the different special committees were considered, as was the conservation of telegraphing and telephoning over commercial and railroad wires. The shortage of operators, plans for schools of instruction and the emergency use of facilities in the operation of railroads to meet the war situation were also discussed. The president outlined the conditions brought about by the government assuming control of the railroads the first of the year and spoke of the proposed amalgamation of the various railroad associations. He further stated that while the association had not made much progress during the last two years the outlook for the future was decidedly bright.

Committee Reports

Reports were submitted by special committees 1, 2, 5, and 7, while committees 3, 4, and 6 also presented brief reports. Special committee No. 1, reporting on The Construction and Maintenance of Outside Plant, wished to decide certain fundamental principles for use in writing pole line specifications and the following questions were presented for decision:

(a) Shall the pole lines be designed to have a factor of safety in construction under certain assumed loadings of ice and wind for the territory in which they are located, and the ultimate number of wires to be placed on them?

(b) The committee recommended that the different wind pressures to be assumed be 2, 4, 6, and 8 lb., which are produced by wind velocities of 33.5, 49, 61.5, and 72 miles, respectively. The different ice loads recommended were $\frac{1}{2}$ in., $\frac{3}{8}$ in., $\frac{1}{4}$ in., $\frac{1}{8}$ in., and no coating of ice on the conductors.

(c) The factor of safety to be used in connection with pole line structures was recommended as two, except where the poles are located within striking distance of main tracks, in which case there shall be a factor of safety of three.

(d) The classes of poles recommended for use are class "AA," "A," "B," "C" and "D" (present Western Union standards).

(e) It was recommended that the lowest wire on pole lines should clear the ground by at least 10 ft.

(f) It was recommended that pole lines having capacities for 6, 10, 20, 30, 40, and 50 aerial wires be considered standard, and that specifications for 60, 70, and 80 aerial wires be provided but not to be used except in special cases.

(g) It was recommended that the minimum spacing between poles be 75 ft. and the maximum 130 ft.

(h) The committee recommended that storm guys should not ordinarily be considered a part of the pole line structure when figuring the necessary strength for carrying the different wire loads, but should be used in order to keep down the vibration of the lines when they are subjected to storm conditions.

Committee No. 2, reporting on The Construction and Maintenance of Inside Plant, submitted to the meeting a report covering the location, installation and wiring of equipment for the ordinary way station.

Committee No. 5, reporting on Protection Against Lightning and High Tension Circuits, made the following recommendations:

(a) All wires should enter the stations through line fuses of 7 to 15 ampere capacity with cutout of the so-called self-cleaning air gap or vacuum type on the office side of the line fuses. Reports on vacuum arresters indicate that for the present it would be advisable to use an air gap arrester in multiple with each vacuum arrester. This recommendation is based on information that vacuum arresters now in service on railroad telephone lines do not maintain their low voltage breakdown at all times. Future developments may eliminate the necessity of air gap arresters in parallel with vacuum types.

(b) Low ampere fuses, $\frac{1}{2}$ to one ampere, should be used between the arresters and the telephone equipment.

(c) After installation, reasonable maintenance being assumed, protectors used at telephone stations owned by railroads shall not break down on voltages below 350 volts d.c., but should break down at 750 volts d.c.

Committee No. 7, reporting on Railroad Message Traffic, presented to the meeting a report and recommendation of the requirements that must be met in order to justify the installation of the printing telegraph.

Elimination of Unnecessary Telegraph and Telephone Business

The president, as manager of the Telegraph section of the Railroad Administration, in speaking of Circular No. 61 issued by the director general under date of October 25 with reference to relieving the railroad telephone and telegraph facilities from unnecessary business, stated that the circular was based on a resolution adopting a report of the special committee at the meeting held at Chicago on November 22, 1917. A brief comparison was then made between Circular No. 61 and the special report. In this connection the form of traingram envelope and blank was discussed and the president announced he was working on the compilation of a cipher code for the Railroad Administration for use in obtaining brevity in telegraphic transmission, and that he has already recommended that the symbol system be made the standard.

A plan for the establishment of a standard system of censoring was presented and discussed, also the question whether telegrams should be censored before or after transmission.

With reference to the establishment of a standard system of censoring, which has been started but not yet completed, it is the intention to place a censor in the office of the Telegraph section at Washington as well as in the offices of the regional directors and on the various railroads. The work of each censor should be done under authority given by the highest officer of the organization to which he is assigned. It shall be their duty to go over messages sent over railroad wires, and it will be necessary for them to visit different offices as occasion arises. Censors should be furnished with copies of messages sent over commercial wires by railroad employees, and it is to be the duty of the censors to take up with the officers and employees over whom they have jurisdiction any violations of Circular No. 61. It has not been

definitely decided whether telegrams should be censored after transmission or before they are sent.

Adoption of Standards

Referring to standards the president stated it to be his intention as manager of the Telegraph section to develop and fix certain standards in conjunction with the Association for the use of the railroads under federal control in connection with telegraph and telephone facilities; this subject being brought up to obtain the views of the members of the Association. In considering the establishment of standards it was felt that they could be listed under the three heads of outside plant, inside plant and traffic.

Some of the standards suggested for establishment in connection with outside plant are pole lines, underground construction, wire crossings, transpositions, installations of cables, terminal pole construction, maintenance rules for linemen and gangs, and specifications for different items of material.

Under inside plant some suggested standards cover such subjects as switchboards of all classes and sizes for telegraph and telephone circuits, single line telegraph circuits, concentration units, equipment arrangement in railroad telegraph and telephone offices, wiring of telephone sets, selector telephone circuits and systems, jack boxes for telegraph and telephone circuits, phantom telephone circuits, block telephone circuits, general specifications for location and wiring of equipment and a handbook of standard telegraph and telephone circuits. In connection with inspection and manufacturers' specifications and instructions for telephone and telegraph material it was felt that consideration should be given to such items as batteries, concentration units, telephone receiver and transmitter cords, jack boxes, telephone and telegraph selectors, desk and wall telephone sets, telephone sets for blind sidings, cables for office and outside use and wire.

Under the head of traffic, subjects for consideration were operating rules, symbol system, mailgram system, standard message blank, the placing of the initials of the railroad after the signature on messages, plan for numbering messages and standard wire signals.

The president, in suggesting the subjects outlined above, wished to obtain the views of the association as a guide and stated it was his intention to include in his lists, in so far as practicable, such standards and specifications as were agreed upon by the association.

There were registered at the opening sessions 86 active members, 14 associate members and 34 visitors and guests. Recommendations on pole lines were amended to make the maximum spacing of poles 140 feet. The subcommittee of Committee Number One, on underground conduits, submitted amendments to the recommendations. During the discussion of the report of Committee Number Two, the importance of proper protection for office equipment was brought up. This matter was also considered by Committee Number Five in connection with protection against lightning in high tension circuits. It is particularly necessary that proper protection be furnished where high tension lines parallel telegraph and telephone lines, one railroad having had seven stations destroyed in four years, due to inductive surges.

The report of Committee Number Five shows that 46 different types of lightning arresters are used on railroads with ampere fuse capacity ranging from one-half to 20 amperes. A number of types of grounds are in use and investigations show that no regular method of testing these grounds are adopted by the various railroads. It was recommended that standard grounds be presented, as well as standard methods of testing them, and that some standard form of systematic inspection be adopted in order to provide standard practice for the roads.

General News Department

The governor of Florida, in a message to a special session of the Legislature on November 29, recommended the abolition of the State Railroad Commission. The governor suggested that if and when the railroads shall be returned to their owners, the commission can be re-established.

The landing place for the airplane mail carriers, flying from Washington to New York, has been changed from Belmont Park, 20 miles east of New York, to Elizabeth, N. J., 12 miles west of New York. The post office department expects to have airplanes carrying mail regularly between New York and Chicago on and after December 1.

A recommendation of army engineers that the Interstate Commerce Commission be required to exercise the same supervision over water carriers that it does over rail carriers, is contained in a report on the development of transportation on the Ohio river, forwarded to Congress by the Secretary of War. The engineers also recommend that the commission be authorized to fix minimum and maximum rates for freight movement by water.

Correction

In the list of firms to whom space had been allotted for the 1919 Annual Exhibit of the National Railway Appliances Association, published in our issue of November 22, page 936, the name of the Ramapo Iron Works, Hillburn, N. Y., was omitted. This company was allotted space at the same time the other firms received their allotments and its name should have appeared in the original list.

Transportation Conference

The Chamber of Commerce of the United States has called a conference representing the various interests of the nation—financial, commercial, industrial, agricultural, labor, civic, social, and governmental—affected by transportation, to meet in Washington December 12 and 13. The purpose is an exchange of views with respect to future control and ownership of the transportation agencies. This is only the first of a series of conferences which it will be necessary to hold before any declaration can be made.

Railway Engineers to Be Demobilized

The department of military railways, like many other war activities, is winding up its affairs as rapidly as possible. While many of the railway forces abroad will undoubtedly be required there for some time, certain units have been assigned to early convoys for return to this country, according to an announcement by General March, chief of staff, and he included also 38,000 men in railway engineers and special units as among the troops designated for demobilization in the United States. S. M. Felton, director general of military railways, hopes to be able to complete his work in Washington and to return to Chicago in about two months.

To Assist Discharged Soldiers in Obtaining Employment

Representatives of the United States Employment Service are to be stationed in all army camps and stations in this country to assist discharged soldiers in securing suitable civilian employment, according to an arrangement made effective between the War Department and the Department of Labor. Under this arrangement, agents of individual companies will not be allowed to enter the camps to recruit labor for any particular enterprise or solicit or make contracts with discharged soldiers. All employers desiring to

employ discharged men should communicate at once with the federal directors for the states in which their work is located. It is also provided that the railroad and fuel administrations, the Shipping Board and the post office department may send accredited representatives to the camps to furnish the camp commanders with information as to opportunities for employment, but such representatives will not be permitted to deal directly with the men themselves.

Tie Producers

The proposed meeting of Railroad Tie Producers' Association has been again postponed, because of a renewed outbreak of influenza. The meeting will probably be held at St. Louis in the fourth week in January, in connection with the convention of the American Wood Preservers' Association.

Yardmasters Form New Association

At a meeting held in Cincinnati on December 1, six organizations of yardmasters and terminal officers were consolidated to form the "Terminal Railroad Yardmasters of America," intended to be a national organization. Among the associations represented are the National Association of Yardmasters, the Terminal Officers' Association of America, the Brotherhood of Railroad Yardmasters and the Railway Yardmasters' Association of America. F. N. Mason, C. M. & St. P., Milwaukee, Wis., formerly grand president of the National Association of Yardmasters, was elected president, and Frank X. Luxman, "Soo Line," St. Paul, Minn., was elected first vice-president. The promoters say that the new organization represents a membership of 2,500 men. Headquarters will be established at Columbus, Ohio.

Banker Modifies Stand on Government Ownership

John J. Mitchell, president of the Illinois Trust & Savings Bank, Chicago, whose espousal of government ownership was quoted in the *Railway Age* of November 29, has since modified his attitude toward the solution of the railroad problem. In an interview made public on December 3, he recommends the operation of the railroads through an organization similar to that of the federal reserve banking system. According to his plan, a board of control, with headquarters at Washington, would be appointed in a manner to be determined by Congress and would consist of the foremost men in the country. This board might be made up of seven members with either three railroad men as a minority or four railroad men as a majority. There should then be appointed regional directors, seven in number, possibly, covering the entire country. The properties might remain under their present ownership for operation, but subject to the supervision of the regional directors and in turn to the final authority of the government board at Washington.

"Soldiers First!"

This is a new slogan on the Canadian Pacific. A. D. MacTier, vice-president, has posted a bulletin which reads in part:

"It is desired that all officers and employees concerned shall, in so far as possible, place themselves in the position of the father, mother, wife, sister or other relative of the returning soldiers, and deal with them as they would wish to be dealt with under similar circumstances. . . . Troop trains are to be given every possible despatch . . . and are to be given preference over all other trains including regular passenger trains.

"Station staffs at destination points should be fully and promptly advised of the expected time of the arrival of troop trains, with all particulars available as to the names of steamships from which the passengers come, and any other known details. Operators should keep in close touch with the movements of the trains so that the information posted may be up to the minute. Train inquiry clerks as well as all other station staff concerned will be expected to deal courteously and patiently with all inquiries, giving them correctly and clearly the fullest information possible in response to their inquiries."

The Railway of the Forty-fifth Parallel

The railway across Europe following the forty-fifth parallel which for many years has been a favorite subject of discussion by various French interests has again been brought up for consideration. Press despatches from Paris under date of November 24 tell of an interview in L'Information with Jules Cels recently appointed Under Secretary of Public Works and Transport in which in speaking of the work of his department, he says:

"Studies are being made of a plan for a great international railway route from Bordeaux to Odessa. There is also a committee studying the project of constructing a tunnel under the English Channel and another through the Vosges Mountains, west of Alsace."

The general line suggested follows the forty-fifth parallel of latitude and runs from Bordeaux to Lyons, then to Milan, Venice and Triest, thence by way of the Save Valley to Agram, the Jugo-Slav center, and thence to Belgrade, Bucharest and Odessa. Most of the railway links in this chain are already constructed, but they are under various administrations, and there are unfinished links, chiefly across Jugo-Slav districts.

Records of Passenger Train Performance in the Northwestern Region

Although unnecessary duplication of passenger service has been eliminated by the Railroad Administration, the rivalry which formerly existed between the roads in the matter of maintaining published schedules has not been abolished. In the Northwestern region the performance of passenger trains is summarized in monthly reports, showing for each road the number of trains operated, the number on time and those arriving at destination from 15 to 30 minutes, from 30 to 60 minutes and one hour or more behind the schedule. Similar data are shown for the trains received from connecting lines.

The reports show that during the month of September the total number of trains operated was 7,574, of which 5,711, or 75.4 per cent, arrived at the destination on time; 659 were 15 to 30 minutes late; 686 were 30 minutes to one hour late, and 518 more than one hour late. This included 419 trains received late from connecting roads. In October the total number of trains was 7,862, of which 5,938, or 75.5 per cent, arrived on time. There were 674 from 15 to 30 minutes late; 703 from 30 minutes to one hour late, and 547 one hour or more late. The trains received late from connections numbered 435. Among the individual roads, one of the best showings was that of the Chicago, St. Paul, Minneapolis & Omaha. This road operates about 800 passenger trains each month, and during September and October 88 per cent of these arrived at the terminal on time.

Campaign Against Car Thieves

Reports from the secret service of the Railroad Administration indicate that the campaign for the apprehension of car thieves is progressing with very satisfactory results. Last week, Monday, merchandise valued at \$4,006 was recovered at Bessemer and Blue Creek, Ala., from a "fence" there and several arrests were made. At Halifax, N. C., an employee of the Atlantic Coast Line and five citizens of local prominence were arrested in connection with a series of car robberies extending over a long period. One of the defendants

committed suicide. Several thousand dollars' worth of goods were recovered. At Detroit, last Friday, four "receivers," having in their possession 4,930 half pints of whiskey, stolen from the Wabash Railroad, were arraigned. On Saturday an 18-year-old express messenger between Washington and Philadelphia was arrested by the railroad inspectors. He had been stealing property from trunks in express cars mounting into the thousands of dollars. His method was to break open trunks, rifle the contents, and then throw the trunks into a river while the train was crossing the bridge. Much of the property stolen in this manner was recovered in Washington and returned to its owners.

Airplane Activities in Time of Peace

The latest revision of the Post Office Department's announcement concerning the establishment of an airplane line for carrying letters between New York and Chicago shows the date for beginning the service as December 15. The rate for letters by airplane, which now is 16 cents, is to be reduced to six cents an ounce; but the change is a reduction only in name as the present rate includes ten cents for special delivery which, under the new arrangement, will be optional with the sender. It is planned to have the airplanes deliver letters, both at the terminals and at way stations, at the proper time to be taken out by the regular letter carriers; and this applies to the New York and Washington as well as to the New York and Chicago line. Faster machines are to be put in use between New York and Washington, with the intention of insuring arrival of the mail in time for the regular delivery in the afternoon.

The airplanes take only first-class mail, but this includes packages, sealed, measuring not over 30 inches in length and girth combined.

The New York-Chicago air route will be divided into three legs. Starting from Elizabeth, N. J., the first regular stop will be Bellefonte, Pa., with an emergency landing field at Lehighton, Pa.; the next regular stop will be at Cleveland, Ohio, with an emergency landing place at Clarion, Pa., and the final leg from Cleveland to Chicago, with a stop at Bryan, Ohio, to take on and discharge mail.

A new type of seaplane, which is now being tried by the navy department, designated N. C. 1, made a flight at Rockaway, L. I., near New York City, on November 27, carrying 50 men. This machine was equipped with three Liberty motors, with a combined energy of 1,200 hp.

An army airplane of 400 hp., a "De Haviland Four," arrived at New York on November 30 from Dayton, Ohio, in four hours, 10 minutes from the time of starting, no stop having been made. The air line distance is calculated at 550 miles, making the average rate of speed 132 miles an hour. This machine arrived at Mineola, about 20 miles east of New York City Hall, at 3:10 p. m., with only half its gasoline used up.

The War Department has turned over to the Post Office Department 100 De Haviland No. 4 and twelve Handley-Page airplanes. The De Haviland fours will carry 400 lb. and the others are large bombing planes, capable of carrying a ton or more.

Investment Bankers

The seventh annual convention of the Investment Bankers Association of America will be held at St. Louis, Mo., next Monday, Tuesday and Wednesday, December 9, 10 and 11. John E. Oldham, of Boston, Mass., will present the report of the committee on Railroad Securities, of which he is chairman, on the first day.

New England Railroad Club

The December meeting of the New England Railroad Club will be held at the American House, Boston, next Tuesday evening, and the subject for discussion is fuel conservation, with an address by Robert Collett, assistant manager of the Fuel Conservation Section of the United States Railroad Administration.

Traffic News

Grain loading up to November 9, this year, has amounted to 568,565 carloads, as compared with 437,550 in the corresponding period of 1917.

Free storage of l.c.l. freight, after December 17, will end 24 hours after arrival, according to notices which have been circulated at Baltimore, Md.

Bituminous coal production and distribution are now so satisfactory that abolition of all price and zone restrictions are likely to be removed on December 15. Anthracite distribution, however, remains a problem.

In order to permit the full utilization of cars in the shipment of tobacco, a plan for the adoption of a so-called "standard hogshead" which will allow double tiering in box cars used for this purpose is being worked out by the Railroad Administration in conjunction with the War Industries Board. Tobacco to be used in the manufacture of cigarettes, chewing and smoking tobacco, is carried in hogsheads 48 in. by 52 in., 48 in. by 56 in. or 48 in. by 60 in., which does not permit of full utilization of car room. An effort is being made to have adopted a standard hogshead 46 in. by 48 in., which it is hoped will save one third of the cars now used.

Standard Ticket Forms Approved

The report of the Railroad Administration Ticket Committee has been completed and approved to be effective December 1. The report covers standard forms of passage tickets, conductors' cash fare receipts and exchange tickets, ticket orders, furlough fare certificates, clergy certificates, sleeping car tickets, parlor car tickets, and baggage checks.

The club car has been restored on the Congressional Limited between New York and Washington.

Export Bills of Lading

The Trans-Pacific Export Bill of Lading Agency is to be established December 15, at 143 Liberty street, New York City, C. H. Morehouse, agent, to attend to the issuance of export bills of lading, for goods going across the Pacific ocean. The shipper will be required to make all necessary copies of bills of lading, and he must himself see to all bookings with steamship lines. Railroad permits are required in all cases and may be obtained by the exporter or shipper through his Pacific coast representative. Advices of clearances at ports of exit, when required, must be obtained by exporters or shippers through the agency with whom the booking was made.

Soft Coal Production Improves

The steady decline in the production of bituminous coal from 13,000,000 tons a week in September to less than 10,000,000 tons seven weeks later, has come to an end. The Fuel Administration reports that in the week ending November 23, production rose to nearly 11,000,000 tons, a gain of 12.5 per cent. The total production of bituminous coal and lignite, including coal coked, from April 1 to November 23 is estimated at nearly 400,000,000 net tons, a gain over the corresponding period of 1917 of 40,000,000 tons, or 11 per cent. For the first time this year there is a drop in production because of no market. The transportation change in the period of a few weeks is declared to be significant because it is indicative of the possibility of a reversal later with a return of unfavorable conditions. This condition has been brought about by the accumulation of stocks made possible by the heavy shipments during the last four months, the possession of which has taken the keen edge off the industrial demand.

The railroads during the week ending November 16 loaded 195,423 cars of all kinds of coal, as compared with 245,317 during the corresponding week of 1917. The total increase in coal loading for the year up to November 23 is estimated at 630,539 cars.

Commission and Court News

Interstate Commerce Commission

C. C. McCain, agent, has filed a fifteenth section application for increased class and commodity freight rates from stations in New England and Trunk Line territories subject to New York, Philadelphia, Baltimore, Scranton, Williamsport, Cumberland, Albany or Syracuse rates, or points basing thereon, to points in Central Freight Association territory, St. Paul, and points taking the same rates or rates basing thereon, and to points in Trunk Line territory where rates are made with relation to New York to Chicago rates, also increased class rates from Norfolk, Va., and other points to Buffalo, St. Paul, and points basing thereon, and points in C. F. A. territory, to restore differentials and relationships temporarily disarranged under the blanket 25 per cent supplements.

Personnel of Commissions

John A. Shirley, who has been district inspector of locomotive boilers for the Interstate Commerce Commission at San Antonio, Texas, since 1911, has been nominated by the President for appointment as assistant chief inspector, succeeding Garland P. Robinson, resigned.

Court News

Removal of Industry Tracks

In a suit in equity to enjoin the removal of a spur track in Pawtucket, R. I., which was being done under the Rhode Island grade crossings, act of 1911-12, the Supreme Court of that state holds that the power to eliminate grade crossings at a certain point includes the power to remove spur tracks at such point to another location; such power being necessary to enable the railroad to continue serving the public as a carrier. Such removal without compensating the merchants and industries using such spur tracks for their loss in being deprived thereof, is not in violation of their constitutional rights; the custom of railroads in furnishing such facilities gives the merchants no property rights therein. The statute is not unconstitutional as taking property of the railroads without compensation therefor, no property being taken, and the right given to the railroad by the state to have a track at the location of such crossing is subject to the police power of the state to require abandonment of a crossing when public safety demands it. The bill was therefore dismissed.—*Armour v. New York, N. H. & H. (R. I.), 103 Atl., 1031. Decided June 19, 1918.*

"Doing Business"—Effect of

Government's Taking Over Railroads

The Federal District Court for the Southern District of New York holds that a foreign railroad corporation which had formerly maintained an office in New York where it solicited business cannot be deemed "doing business" in that state during the period when it was dismantling the office and preparing to abandon it, pursuant to order of the United States Director of Railroads. Whatever in the way of "doing business" in the state had theretofore gone on ceased on April 25, 1918, as the result of the taking over of the railroads by the government and the order that was given. It also holds that where a Virginia railroad company which maintained no lines in New York solicited passenger and freight business in New York, it was not thereby "doing business" there, as the solicitors merely sought to obtain business, received no money for freight, and issued no tickets for transportation of passengers; hence service of process on one of the company's New York solicitors would not give the New York court jurisdiction.—*Partola Mfg. Co. v. Norfolk & Western, 250 Fed., 273. Decided July 2, 1918.*

Equipment and Supplies

Locomotive Deliveries

A total of 52 new locomotives were shipped to railroads under federal control during the week ending November 23, of which 49 were of the U. S. R. A. standard types, as follows:

Works	Road	Number	Type	Individual engine No.
	*Wabash	17	USRA Mikado	2203-20
	Pa. Lines West.	3	USRA 6 W. Switch.	7047, 52, 55
	Pa. Lines West.	1	Santa Fe	7242
	C. of N. J.	4	USRA 6 W. Switch.	104-7
	H. V.	2	Mallet	221-2
American	E. P. & S. W.	3	USRA Mikado	391-3
	N. Chatt. & St. L.	4	USRA Mikado	650-3
	N. Y. C.	2	USRA 8 W. Switch.	437, 439
	Southern	3	USRA 8 W. Switch.	1878-80
	Total	39		
Lima	N. Y. C.	5	USRA Mikado	5152-6
	C. C. C. & St. L.	6	USRA Mikado	6105-10
Baldwin	A. C. L.	1	Mikado	825
	G. N.	1	Mikado	3136
	Total	8		
	Grand total	52		

*Ten USRA Mikado numbers 2211-20 constructed for the Wabash and three USRA Mikado 391-3 constructed for the El Paso & Southwestern were sent to Cleveland, Ohio, to be stored as part of an emergency pool.

Cars Built in Railroad Shops

A total of 765 new freight cars and 2 passenger cars were constructed in railroad shops during October, according to a statement by the Railroad Administration. The details follow:

Class of cars	Steel	Steel center sills	Wood	Total
Passenger:				
Passenger baggage	2	..	..	2
Total passenger equipment	2	..	..	2
Freight:				
Stock	7	..	60	60
Hopper	27	..	144	151
Gondola	2	17	22	49
Flat	4	..	..	19
Coke rack	12	29	17	58
Work cars	125	2	196	325
Miscellaneous freight cars	93	..	..	93
Total freight equipment	137	17	447	765
Total passenger and freight	166	17	447	767

Locomotives

THE UNITED STATES RAILROAD ADMINISTRATION, as briefly reported in last week's issue, has reinstated the orders for 500 locomotives from the American Locomotive Company and 100 from the Lima Locomotive Works, which had been held up for about a week. Director General McAdoo announced the execution of the contract with the American Locomotive Company on December 4, stating that the contract with the Lima company would be signed in a few days. The announcement stated that these two contracts involve about \$40,000,000 and have been awarded on a basis to yield the locomotive builders approximately 6 per cent on cost. The locomotive builders guarantee the government against any increase above the stipulated price on account of wages or overhead expenses, while the cost of the principal materials will be regulated by the government through the price-fixing committee. The delay is explained as having been due to the uncertainty of conditions as they appeared immediately after the signing of the armistice. Director General McAdoo directed that the orders be held up pending an investigation to ascertain whether the railroad corporations would pay for the engines, but after the operating department had reported that they were needed it was decided to authorize that the work be again taken up.

Freight Cars

THE RUSSIAN GOVERNMENT has recently reinstated orders for 4,000 of the freight cars it had previously ordered and later cancelled. The American Car & Foundry Company will build 2,600 and the Standard Steel Car Company 1,400.

Miscellaneous

COLORADO & SOUTHERN.—This road has awarded a contract to Fairbanks, Morse & Co., Chicago, for the construction of a 300-ton capacity bucket-conveyor type, coaling station at Seventeenth and Champa streets, Denver, Colo. The plant will deliver coal to engines on two tracks and will be operated by a 15-h. p. oil engine, Fairbanks-Morse type Y. The station will have a concrete foundation and a wooden superstructure, and the engine house will be constructed of concrete.

Signaling

PENNSYLVANIA RAILROAD, Eastern Lines.—An electro-mechanical interlocking machine is to be installed at Gunpowder, Md. It has been ordered from the Union Switch & Signal Company.

MISSOURI, KANSAS & TEXAS.—Automatic block signals are to be installed between New Franklin, Mo., and Sedalia, 39 miles. The material will be furnished by the Union Switch & Signal Company.

NEW YORK CENTRAL.—A 36-lever style "A" mechanical interlocking machine is to be installed at New Durham, N. Y. The interlocking machine will be furnished by the Union Switch & Signal Company.

LEHIGH VALLEY.—A 20-lever, style "A," mechanical interlocking machine has been ordered from the General Railway Signal Company for Glendon, Pa.; also a 16-lever electro-mechanical interlocking for Park Place, Hazelton, Pa.

PENNSYLVANIA, Western Lines.—A contract has been awarded to the Union Switch & Signal Company, Swissvale, Pa., for the installation of automatic block signals on five miles, double track, between Clymers, Ind., and Logansport.

CHICAGO, ROCK ISLAND & PACIFIC.—Three 16-lever and one 12-lever mechanical interlocking machines and 17-d. c. style "S" signals have been ordered from the Union Switch & Signal Company, to be installed by railway signal forces at Clio, Iowa; Paxico, Kan.; Tindall, Mo., and Bishop, Kan.

CHICAGO, BURLINGTON & QUINCY.—An order has been given to the Federal Signal Company for automatic block signals at various points as follows: South Aurora, Ill., to Savanna, 104 miles; Creston, Iowa, to Pacific Junction, 82 miles; Pacific Junction, Iowa, to Gibson, Neb., 24 miles; Napier, Mo., to Table Rock, Neb., 48 miles; Guernsey, Wyo., to Wendover, 8½ miles. All signals on single track will be operated under the absolute permissive block system.

VIRGINIAN.—The necessary signal material has been ordered for an installation of a. c. automatic block signals on 13 miles, double track, between Gilmerston, Va., and Sewall's Point. In this district two new a. c. electric interlocking plants and one mechanical interlocking plant with power signals will be installed. The present interlockings, consisting of three mechanical and two d. c. electric plants will be enlarged and remodeled. Material has also been ordered for the installation of 15 miles of a. c. automatic block signals, on account of double tracking, between Clark's Gap, W. Va., and Mullens.

THE DANISH STATE RAILWAYS for a long time have been in need of more freight cars and have now ordered 750 from the "Scandia" factory in Randers, Denmark. This will give work to 500 people who have been unemployed. A set of wheels for a freight car before the war cost \$40, while now they cost \$348.—Commerce Reports.

Supply Trade News

William T. Van Dorn, president of the Van Dorn Automatic Coupler Company, Chicago, died at his home in that city on November 29.

William Casey, formerly manager of the Canadian Locomotive Company, Ltd., Kingston, Ont., has been appointed to the position of general manager.

L. C. Sprague, district manager of sales of the Chicago Pneumatic Tool Company, at New York, has been appointed assistant secretary, with headquarters at 52 Vanderbilt avenue in that city.

William M. Kinney, inspecting engineer for the Universal Portland Cement Company, Chicago, has been appointed general manager of the Portland Cement Association, with headquarters at Chicago.

The Walter A. Zelnicker Supply Company, St. Louis, announces the appointment of **Joseph Meyerson** as secretary to the president. Mr. Meyerson was associated for 10 years with the Southwestern Tariff Bureau, latterly as secretary to F. A. Leland.

C. B. Matthai, an attorney for the Union Pacific corporate organization, has been elected secretary of the McKeen Motor Car Company, of Omaha, Neb. He succeeds **C. W. Y. Loucks**, who resigned recently as secretary and sales manager to enter the officers' training camp at Plattsburg, N. Y.

J. K. Mahaffey has been appointed sales manager of the Pittsburgh district for the Edison Storage Battery Company, with office at Pittsburgh. Mr. Mahaffey has been with the Edison Company for the last two years. He served for several years with the General Electric Company, and a number of other electrical concerns.

George T. Cooke has resigned as eastern sales manager of the Vapor Car Heating Company, Inc., to accept the presidency of the Union Metal Products Company, with office in the Singer building, New York. Mr. Cooke was born in Chicago on May 28, 1883. After receiving a technical and mechanical training he entered the employ of the Pullman Company in 1901 as draftsman. Later he was made chief draftsman of the Calumet repair shops, and subsequently was promoted to chief inspector and finally mechanical inspector. In 1911, he left the Pullman Company to become southern manager for the Chicago Car Heating Company, at Atlanta, Ga., and in 1913, he was transferred to this company's New York office as eastern manager. When the Chicago Car Heating Company and the Standard Heat & Ventilation Company, Inc., were absorbed by the Vapor Car Heating Company, Inc., in 1917, Mr. Cooke was made eastern manager, in charge of sales and mechanical matters in the eastern territory, which position he held until the first of this month, the date of his connection with the Union Metal Products Company as president.

John E. Galvin has been elected president of the Ohio Steel Foundry Company, of Lima, Ohio. Mr. Galvin has been operating vice-president since the organization of the

company in 1907. In 1916 he built a converter and electric foundry at Springfield, Ohio, for the manufacture of small steel castings, and later sold it to the Ohio Steel Foundry Company. This plant is now known as the Springfield works of that company.

Bertram Smith, heretofore district sales manager at Detroit, has been appointed assistant general sales manager of the Edison Storage Battery Company, with headquarters at the main office, Orange, N. J. Mr. Smith is one of the old-timers of the storage battery business, having formerly been with the National Battery Company.

R. W. Burnett has resigned as master car builder of the Delaware & Hudson to become associated with the Joliet Railway Supply Company as assistant to the general manager, and with the National

Car Equipment Company as vice-president, with headquarters at Chicago. Mr. Burnett was born at Farmer City, Ill., in 1868, and in 1890 became connected with the Union Pacific in the car department at Denver, Colo. In 1892 he went to the Pennsylvania as a car inspector at Chicago, and from August, 1892, to July, 1899, was successively foreman and general foreman of the car department of the Lake Shore & Michigan Southern, at Chicago. During the early part of 1900 he was employed as general foreman of the car department of the Long Island, going to the Central Railroad of New Jersey the latter part of the year as general foreman of the car department at Elizabeth, N. J. From 1904 to January, 1907, he was successively assistant master car builder and master car builder of the Erie at Meadville, Pa. On the latter date he went to the Canadian Pacific as assistant master car builder, being made general master car builder in 1909. He left the latter road in November, 1915, to become vice-president of the National Car Equipment Company, returning to railway service on September 1, 1917, as master car builder of the Delaware & Hudson.

William P. Dalton, formerly for many years chief engineer of the Schenectady plant of the American Locomotive Company, has been appointed assistant manager of the Schenectady works of the General Electric Company. For the last three years, Mr. Dalton has been with the Washington Steel & Ordnance Company, engaged in war work. He was graduated from Cornell University in 1890.

Lieutenant Clarence E. Holborn was instantly killed in an airplane accident at Call Field, Wichita Falls, Texas, on December 3. Lieutenant Holborn, previous to entering the military service, had been in the advertising department of the Hyatt Roller Bearing Company, New York. After leaving school he entered the service of the Simmons-Boardman Publishing Company, publisher of the *Railway Age*, and for a number of years was connected with it in various capacities in the business and advertising departments.

W. C. L. Lamot, of Antwerp, advises that he is about to return to that city and would like to get in touch with any American firms who desire to establish an agency in Belgium. Mr. Lamot was established in Antwerp from 1907 until the outbreak of the war, as an importer, exporter and shipping agent on his own account and had extensive business connections in both the industrial and commercial world. Since 1914 he has been acting as general merchant and commission agent in London, supplying many Belgian and British airplane, munition, and engineering works. To facilitate matters he has given the *Railway Age* a list of his connections



G. T. Cooke



R. W. Burnett

as well as references. His present address is 22 Northumberland avenue, London, W.C.2.

L. E. Schumacher, who for the past eight years has been chief inspector of the Westinghouse Electric & Manufacturing Company, at East Pittsburgh, Pa., has been promoted to works manager of the Krantz Manufacturing Company, of Brooklyn, N. Y., the latest subsidiary of the former company. Mr. Schumacher has been with the Westinghouse Electric & Manufacturing Company, 18 years prior to which he was with the Niagara Falls Power Company. The Krantz concern makes safety switches, panel boards and floor boxes.

Trade Publications

BOILER TUBE CLEANERS.—A general catalogue, X-4, has been issued by the Lagonda Manufacturing Company, Springfield, Ohio, describing in detail the boiler tube cleaners and accessories and other boiler room appliances manufactured by this company, and stating the work for which each type of cleaner is best adapted. All are illustrated and a number of sectional views are shown with the parts named.

IRON AND STEEL PRODUCTS.—A new edition of the Interstate Blue Book has been published by the Interstate Iron & Steel Company, Chicago. This book contains 204 pages and gives complete information regarding all Interstate products. Bars, bands, angles, channels, tees, flats and special shapes are shown with sizes listed for both wrought iron and high or low carbon steel, and the many other products of the company, including wire and wire products, staples and rivets are fully illustrated and described. The book contains the National Iron & Standard Steel classifications of price extras, as well as a number of weights and gages and other valuable information conveniently arranged for ready reference. The alloy and special analysis steels from the South Chicago plant are also described.

RAILROAD WATER SOFTENING.—The Wm. Graver Tank Works, Chicago, has issued a treatise on the subject of water softening which consists of a collection of 31 reprints of full-page advertisements appearing in the *Railway Age*. These advertisements are unusual in that little or no reference is made to any particular make or type of water softener, the material being almost entirely in the nature of a comprehensive exposition of the entire subject. Of particular note are 12 sheets presented in the form of articles covering various phases of this subject, prepared by W. R. Toppin, manager of the railroad department of the W. Graver Tank Works. These appear with such titles as "Operating Efficiency Increased by Purifying Water," "Water Softening in Relation to Ton Mileage," "The Method of Water Treatment Determines the Uniformity of Results." In addition to these 31 pages there is an 8-page appendix on the chemistry and economics of water softening. This service to combine in a very short space a large amount of information required by the water service engineer in solving the problems arising in his work.

PROPOSED BRANCH TO PUKOW RAILWAY.—Last year the merchants of Chinkiang, China, and Yangchow petitioned the Ministry of Communications to extend the Pukow-Sinyang Railway to Kwachow, which is near Yangchow and opposite Chinkiang. It is proposed that the extension should be effected by building a line from Wuyi, on the Tientsin-Pukow Railway, to Kwachow, a distance of some 60 odd miles. Owing to the impossibility of securing necessary funds for the work no progress is being made with the Pukow-Sinyang Railway, and seeing that the government is unable to do anything at the present moment with their project the chambers of commerce of Yangchow and Chinkiang have decided to raise the necessary funds themselves and start the building of the connecting line at once. The two chambers of commerce are now planning the issue of debenture bonds to secure the capital. Kwachow, Yangchow and Chinkiang are important trading centers through which the abundant products of the Eastern Kiangpei must pass, and it is believed that as soon as rail connection is completed which will make these three cities accessible to the Tientsin-Pukow line, and the Pukow-Sinyang line, the trade development of these localities will be materially quickened.—*The Far Eastern Review*.

Railway Officers

Railroad Administration

Central

Luther M. Walter has resigned as assistant director of the Division of Public Service and Accounting of the Railroad Administration to return to his law practice in Chicago as a member of the firm of Borders, Walter & Burchmore, and he will also become one of the general counsel for the National Association of Owners of Railroad Securities, which is planning to conduct an active campaign for the return of the roads to their owners. For this purpose he will also have an office in Washington. Mr. Walter was formerly an attorney for the Interstate Commerce Commission and later commerce counsel for Morris & Co., of Chicago. He was also counsel for the National Industrial Traffic League.

Regional

W. A. Hopkins has been appointed supervisor of stores for the Southwestern region, with headquarters at St. Louis, Mo., effective December 1.

W. Rogers has been appointed telegraph and telephone engineer for all lines in the Southwestern region, with headquarters at St. Louis, Mo.

J. T. King has been appointed acting operating assistant to the Southern regional director, with headquarters at Atlanta, Ga., succeeding **George R. Loyall**, resigned to become assistant federal manager of the Southern Railroad and associated lines.

J. L. Haugh, whose appointment as engineering assistant to the Northwestern regional director, with headquarters at Chicago, has been announced in these columns, was born in



J. L. Haugh

1887. He took a two-years' course in special engineering work at the University of Michigan and one year at the University of Wisconsin. Mr. Haugh commenced railway work with the Chicago & North Western in 1905 as a draftsman on maintenance work. The following year he was employed as instrumentman on construction on the Manitowoc, Green Bay & Northwestern, and the next two years was successively topographer on railway location and instrumentman on maintenance on the Chicago & North Western. He was then for a year locating engineer on the Milwaukee, Sparta & Northwestern, and the following two years was assistant to the engineer in charge of construction on the same line. Subsequently for two years he was assistant to the engineer in charge of construction of the St. Louis, Peoria & Northwestern from Peoria, Ill., to Gerard, and later for six months was engineer on heavy grade reduction between Manlius, Ill., and Radnor on the Chicago & North Western. He was then for 2½ years assistant engineer on valuation work, and then became assistant to the chief engineer of that road. He served in the latter capacity for one year, when he was made engineer of capital expenditures in the office of the Northwestern regional director at Chicago, which position he held until his recent appointment, as mentioned above.

Federal and General Managers

The jurisdiction of **P. R. Todd**, general manager of the Bangor & Aroostook, with office at Bangor, Me., has been extended over the Van Buren Bridge Company.

The jurisdiction of **E. M. Rine**, federal manager of the Delaware, Lackawanna & Western, with office at New York, has been extended over the Lackawanna & Montrose.

F. C. Batchelder, general manager of the Baltimore & Ohio Chicago Terminal and the Chicago Heights Terminal Transfer, has been appointed assistant to federal manager of the Baltimore & Ohio, Western Lines, with headquarters at Chicago.

G. R. Loyall, operating assistant to **B. L. Winchell**, regional director of the Southern Region, has been appointed assistant federal manager of the Southern Railroad Lines and associated railroads, with jurisdiction over all lines, and headquarters at Washington, D. C.

Operating

R. B. Coleman, general manager of the Georgia, Florida & Alabama, with office at Bainbridge, Ga., has been appointed general superintendent.

G. B. Small has been appointed supervisor of the fire loss and protection department for the Great Northern and will report to the general manager.

J. C. Snavely will return as superintendent of the relief and pension department of the Norfolk & Western, effective December 1, 1918, and **V. A. Riton** will be assigned to other duties.

H. F. Burch, assistant to the general manager of the Delaware & Hudson with office at Albany, N. Y., has been appointed superintendent of the Saratoga division, with office at Albany, vice **M. F. Leamy**, transferred.

J. D. Beltz, trainmaster of the Baltimore & Ohio Railroad, Eastern Lines, with office at Pittsburgh, Pa., has been appointed acting superintendent of the Pittsburgh division, with headquarters at Pittsburgh, vice **T. J. Brady**, promoted.

John Wynn, trainmaster of the Northern Pacific, at Dickinson, N. D., has been appointed assistant to the general manager, with headquarters at St. Paul, Minn. **S. A. Wilder**, trainmaster at Jamestown, N. D., also has been appointed assistant to the general manager, with office at St. Paul.

R. E. Landis, superintendent of the Spokane division of the Great Northern, with office at Spokane, Wash., has been appointed superintendent of the Fergus Falls division, with headquarters at Melrose, Minn., vice **B. Lantry**, who has been appointed superintendent of the Spokane division at Spokane, vice Mr. Landis.

B. S. Mace, superintendent of insurance of the Baltimore & Ohio, has been appointed superintendent of fire prevention of the Baltimore & Ohio Railroad, Eastern Lines; the Coal & Coke, the Wheeling Terminal Railroad, the Western Maryland, the Cumberland Valley, and the Cumberland & Pennsylvania, with headquarters at Baltimore, Md.

H. R. Barton has been appointed general fire prevention inspector of the Missouri Pacific, the St. Louis Southwestern, the Louisiana & Arkansas, the Memphis, Dallas & Gulf, the Arkansas Central, the Natchez & Southern, the Natchez & Louisiana Railroad Transfer, the Southern Illinois & Missouri Bridge and the Coal Belt Electric railroad, with headquarters at St. Louis, Mo., reporting to **H. R. Carpenter**, chief engineer.

William Mack Thurber, whose appointment as superintendent of the Dubuque division of the Chicago, Milwaukee & St. Paul, with office at Dubuque, Iowa, was mentioned in the *Railway Age* of November 29, was born at Muscoda, Wis., on March 14, 1881. He graduated from the Muscoda high school in 1898, and commenced railway work in October of that year on the Prairie du Chien division of the Chicago, Milwaukee & St. Paul. From March 15, 1899, to May 26, 1902, he was telegraph operator on the Illinois division, and from the latter date to June 11, 1902, was clerk in the

despatcher's office on the same division. He was then assistant train despatcher until September 15, 1908, when he was advanced to chief despatcher on the Illinois division. On September 1, 1917, he was promoted to trainmaster on the Dubuque division, which position he held until December 1, when his appointment as division superintendent, as noted above, became effective.

Arthur Theodore Mercier, whose appointment as superintendent of the Southern Pacific, with headquarters at Portland, Ore., was recently announced in these columns, was born at New Orleans, La., on December 11, 1881. He was graduated from Tulane University in 1903, and was assistant engineer on the New Orleans Levee Board until 1904. He was then employed by the Southern Pacific on the Los Angeles division as roadmaster's clerk and transitman, being assigned to work in connection with reconstruction necessitated by the overflow of the Salton sea. From 1906 to 1908 he was general foreman and engineer in charge of terminal construction at San Pedro, Cal., and during 1909 was assistant division engineer on the Los Angeles division. He was then made assistant district engineer of the Southern district, and in November, 1912, was appointed division engineer on the San Joaquin division. The following year he was transferred to the Los Angeles division, as division engineer, serving in that capacity until February, 1917, when he was made assistant superintendent of the Shasta division, with headquarters at Dunsmuir, Cal. He held the latter position until his recent appointment as superintendent of the Southern Pacific lines north of Ashland, Ore., as noted above.

Financial, Legal and Accounting

E. A. Wigren, assistant auditor of the Michigan Central and secretary of the Chicago, Kalamazoo & Saginaw, has been appointed federal auditor of both roads with office at Detroit, Mich.

W. M. Montgomery has been appointed acting auditor of the Silverton Railway and the Silverton Northern Railroad, with office at Silverton, Colo., vice **C. W. Montgomery**, deceased.

G. C. Butler has been appointed auditor of the Georgia, Florida & Alabama, and **L. G. Papy**, secretary and treasurer, with office at Bainbridge, Ga., has been appointed acting federal treasurer.

L. C. Wilds has been appointed acting federal treasurer of the Fort Worth & Denver City, the Wichita Valley, the Ft. Worth Belt and the Abilene & Southern, with headquarters at Ft. Worth, Texas, effective December 1.

W. O. Hamilton has been appointed acting federal treasurer of the Missouri, Kansas & Texas of Texas and the Union Terminal of Dallas, with headquarters at Dallas, Texas, in place of **R. P. Roach**, resigned, effective December 1.

M. Eckart, auditor of receipts of the New Orleans, Texas & Mexico; the St. Louis, Brownsville & Mexico; the Beaumont, Sour Lake & Western, the Orange & Northwestern, and the New Iberia & Northern, with office at Kingsville, Tex., has been appointed auditor, with headquarters at Houston, Texas, vice **J. W. McCullough**, resigned to accept service with the corporation.

Traffic

F. C. Francis, chief clerk to the general passenger agent of the Chicago, Rock Island & Pacific, has been appointed division passenger agent at Chicago.

E. C. Hoag, assistant industrial commissioner of the St. Louis-San Francisco and the Missouri, Kansas & Texas, has been appointed industrial commissioner, with headquarters at St. Louis, in place of **R. W. Hockaday**, resigned. **J. E. Springer** succeeds Mr. Hoag, with office at St. Louis.

Engineering and Rolling Stock

J. E. O'Hearne has resigned as superintendent of motive power of the Chicago & Alton.

Charles W. Weaks has been appointed road foreman of engines on the Toledo division of the Pennsylvania Railroad, Western Lines, at Toledo, Ohio, in place of **R. Palmer**, promoted.

W. C. Burel has been appointed master mechanic of the Pittsburgh division of the Baltimore & Ohio, Eastern Lines, with headquarters at Glenwood, Pa., succeeding **A. H. Hodges**, transferred.

F. L. Nicholson, consulting engineer of the Virginian Railroad, with office at Norfolk, Va., has been appointed chief engineer, vice **H. Fernstrom**, resigned to accept service with the Virginian Railway Company.

B. Wheelwright, acting signal engineer of the Grand Trunk, Canadian lines, with headquarters at Montreal, Que., has been appointed engineer maintenance of way of the New England lines, with office at Portland, Me.

G. R. Galloway, master mechanic on the Baltimore & Ohio, at Lorain, Ohio, has been appointed general master mechanic of the Baltimore & Ohio, Western Lines; the Dayton & Union, and the Dayton Union Railroad, with office at Cincinnati, vice **P. H. Reeves**, assigned other duties.

J. A. Tschorur, general foreman in the locomotive department of the Baltimore & Ohio, Western Lines, with office at Willard, O., has been appointed master mechanic of the New Castle division, vice **M. A. Gleeson**, who has been appointed master mechanic of the Cleveland division, vice **G. R. Galloway**, promoted.

J. O. Enockson, master mechanic on the Chicago, St. Paul, Minneapolis & Omaha, with office at Sioux City, Iowa, has been appointed superintendent of motive power and machinery with headquarters at St. Paul, Minn., and **J. L. Riley**, general foreman at Sioux City, Iowa, has been appointed master mechanic, succeeding Mr. Enockson.

Edwin G. Chenoweth, whose appointment as mechanical engineer of the Rock Island Lines, in charge of both locomotive and car design, with headquarters at Chicago, has already been noted in these columns, was born on December 18, 1873, at Union City, Ind. He graduated from Purdue University in 1895, and entered railway service as a special apprentice on the Erie, at Huntington, Ind. After completing his apprenticeship he was employed as machinist for five years. During this time he took a post-graduate course at Purdue University and subsequently was air brake instructor and foreman of the air brake department of the Erie at Huntington. In 1901 he went to the Pennsylvania as a draftsman at Altoona, Pa., and later was employed in a similar capacity on the Pere Marquette, the Lake Shore & Michigan Southern and the Philadelphia & Reading. He returned to the Erie in 1906, as mechanical engineer, with headquarters at Meadville, Pa., and in July, 1912, he became connected with the Rock Island Lines as assistant superintendent of the car department. One year later, Mr. Chenoweth was promoted to mechanical engineer, in charge of car design, which position he held until his recent appointment, as mentioned above.

W. I. Jefferds, formerly assistant chief draftsman of the Erie, with office at New York, has been appointed resident engineer and assigned to Meadville, Pa., to take charge of the engine terminal facilities now being constructed there which will consist of a 56-stall engine house, machine shop, storehouse, coaling plant and ash handling facilities.



E. G. Chenoweth

George E. Murray, whose appointment as electrical and mechanical engineer of the Grand Trunk Western Lines, with headquarters at Battle Creek, Mich., has been announced in these columns, was born on December 8, 1884, at Decatur, Ill. He began railway work with the Wabash in 1903, and two years later went with the Peoples' Gas & Electric Company, of Defiance, Ohio. He returned to the Wabash in 1906 to install the machinery and equipment in the new car shops at Decatur, remaining with that road until 1910. He then became connected with the Chicago & North Western, where he had charge of electrical equipment in shops, and, subsequently, was made chief electrician of that road, which position he held until his recent appointment with the Grand Trunk Western Lines, as noted above.

Richard Mather, whose appointment as district engineer on the Baltimore & Ohio, of the consolidated territory comprising the Huntington districts and the Baltimore district, with headquarters at Baltimore, Md., has already been announced in these columns, was born on October 3, 1877, at New Haven, Conn. He was educated in Sheffield Scientific School, Yale University, graduating in 1897. He began railway work as axeman on construction with the Chicago & North Western in April, 1898. Subsequently he served as instrument man and resident engineer, and in January, 1902, he resigned to become a resident engineer with the Chicago Great Western on the extension of the Macon City & Fort Dodge from Ft. Dodge to Omaha. On completion of this project he accepted a position of assistant engineer with the Chicago, Burlington & Quincy, with headquarters at Chicago. In May, 1905, he went to the Erie in charge of the construction of the Genesee River Railroad, a low grade cutoff between Cuba, N. Y., and Hunts. On the completion of this work he entered the employ of the Baltimore & Ohio as assistant engineer in charge of surveys and studies of the Eastern Kentucky and Southern West Virginia coal field in connection with the Baltimore & Ohio entry into that territory. On January 1, 1916, he was appointed district engineer at Huntington, where he remained until the consolidation of this territory with the Baltimore district.

J. T. Carroll, mechanical assistant to **Charles H. Markham**, regional director of the Allegheny region, United States Railroad Administration, has been appointed general superintendent maintenance of equipment of the Baltimore & Ohio, Eastern Lines; the Coal & Coke, the Wheeling Terminal, the Western Maryland, the Cumberland Valley and the Cumberland & Pennsylvania, with headquarters at Baltimore, Md., succeeding **F. H. Clark**, resigned.

Corporate

Executive, Financial, Legal and Accounting

S. M. Felton, director general military railways, will resume his duties as president of the Chicago Great Western shortly after the first of January.

R. Ross, assistant treasurer of the Nevada-California-Oregon, with office at New York, has been elected treasurer, succeeding **R. M. Cox**, resigned. **O. R. Belcher**, superintendent, with headquarters at Alturas, Cal., has been elected assistant treasurer.

W. H. Wright, auditor and superintendent of the Wiscon-



R. Mather

sin & Michigan, has been elected vice-president and general manager, with headquarters at Menominee, Mich., succeeding **S. N. Harrison**, who has resigned to join the Railway Board of Adjustment in the Division of Labor of the Railroad Administration at Washington, D. C.

Malcolm Hugh MacLeod whose appointment as vice-president in charge of operation, maintenance and construction of the Canadian Northern, with headquarters at Toronto, Ont., was announced in the *Railway Age* of November 8, has had his authority extended over all the Canadian Government Railways. Mr. MacLeod was born at Isle of Skye, Scotland, on July 13, 1857, and received his education at Franklin, Pa. He entered railway service as a chainman and rodman with the Victoria Railway in 1878. From 1879 to 1881, he was rodman and assistant engineer on construction on the Credit Valley Railroad, now a part of the Canadian Pacific. He then became a transitman on location surveys with the Ontario & Sault Ste. Marie, and in 1882, was assistant engineer on construction with the Toronto & Ottawa. He entered the service of the Canadian Pacific in 1883, and was employed on various construction and location projects. He was appointed chief engineer of the Temiscamingue Railway in 1894, and held that position until 1897, when he became assistant chief engineer of the Crow's Nest Pass Railway of which he was later chief engineer. In 1909, he was appointed chief engineer of the Canadian Northern, lines west of Port Arthur, Ont., and in 1907, became also general manager. He continued in these positions up to the time of his appointment as vice-president with headquarters at Toronto.

C. A. Hayes, general manager, eastern lines, of the Canadian Government Railways, with office at Moncton, N. B., has been appointed vice-president in charge of traffic, with jurisdiction over all lines, of the Canadian Northern Railway System, and the Canadian Government Railways, with office at Toronto, Ont. The jurisdiction of **R. C. Vaughan**, assistant to the president of the Canadian Northern Railway System, with headquarters at Toronto, Ont., has been extended to include all the lines of the Canadian Government Railways. **S. J. Hungerford**, general manager of the Canadian Northern, lines east of Port Arthur, with office at Toronto, Ont., has been appointed assistant vice-president, with jurisdiction over all lines of the Canadian Northern Railway System and the Canadian Government Railways, with office at Toronto, Ont.

Operating

S. H. McCartney, secretary and auditor of the Nevada-California-Oregon Railway, has been appointed general manager, with headquarters at Alturas, Cal., succeeding **R. M. Cox**, resigned.

W. E. Bell has been appointed acting division superintendent of telegraph of the Grand Trunk Pacific, Lines in Alberta and British Columbia, with office at Edmonton, Alta., vice **W. J. Rooney**, granted leave of absence.

F. P. Brady, general manager of the Canadian Government Railways, Western Lines, has been appointed general manager of the Canadian Northern Railway Lines East of Port Arthur and all Canadian Government Railway Lines East of O'Brien, with headquarters at Montreal, Que., and the jurisdiction of **A. E. Warren**, general manager of the Canadian Northern Railway, Western Lines, has been extended to include all Canadian Government Railway Lines West of O'Brien, with headquarters at Winnipeg, Man.

S. Worth has been appointed superintendent in charge of operations of the Algoma Central & Hudson Bay, with office at Sault Ste. Marie, Ont., and **W. C. Paul** has been appointed trainmaster, reporting to the superintendent.

Obituary

Michael J. Clark, who had been secretary of the Chicago & Western Indiana since March, 1885, died at his home in Chicago on November 27, aged 77 years.

Horace Ellsworth Andrews, president of the New York State Railways, the Mohawk Valley Company and the Rochester Railway & Light Company, died at his home in New York, on December 1, at the age of 55. Mr. Andrews was also a director of a number of other railroads including the New York Central and the Michigan Central.

Samuel Nathan Harrison, who had just been appointed a member of Board of Adjustment No. 3 of the Railroad Administration, died of pneumonia at Washington, D. C., on December 1. Mr.

Harrison was born at Trenton, Ont., on February 20, 1867, and entered railway service in 1881 with the Wisconsin Central. He remained with that road for eight years, successively as messenger, telegraph operator on the Northern division, clerk and operator in the mechanical department at Stevens Point, Wis., and train despatcher. He was then train despatcher on the Chicago & North Western until 1894, and from the latter date to 1898 was with the Wisconsin & Michigan as

train despatcher and superintendent of transportation. The following year he was train despatcher on the Minneapolis, St. Paul & Sault Ste. Marie and the Chicago & North Western, and from 1899 to 1900, was chief clerk in the president's office of the Chicago Terminal Transfer Railroad. During 1900 he was superintendent of the Chicago Heights Terminal Transfer Railroad at Chicago Heights, Ill., returning to the Wisconsin & Michigan in January, 1901, as superintendent of transportation. Two years later he was made superintendent of that road, and on May 1, 1911, was promoted to general manager. On February 1, 1912, he was appointed receiver, with office at Menominee, Mich., which position he held until his recent appointment on the Board of Adjustment, as mentioned above.

F. W. Taylor, mechanical superintendent of the Missouri, Kansas & Texas, of Texas, and other lines under the jurisdiction of Federal Manager **J. S. Pyeatt**, with headquarters at Dallas, Texas, died on November 14, aged 43 years. He was born at Water Valley, Miss., on October 24, 1875, and began railway work in 1893 with the Illinois Central as a machinist apprentice. Subsequently he was roundhouse foreman at Water Valley, general foreman at Jackson, Miss., and Louisville, Ky., until October, 1908, when he was made master mechanic at Mattoon, Ill., being transferred four years later to Waterloo, Iowa. On January 1, 1915, he became connected with the International & Great Northern as superintendent of motive power, where he remained two years. He then went to the Missouri, Kansas & Texas, of Texas, as superintendent of motive power, with office at Denison, Texas, and later was appointed general manager, with headquarters at Parsons, Kan. He held the latter position until August last when he was appointed mechanical superintendent of that road and other lines under the control of **J. S. Pyeatt**, federal manager.



M. H. MacLeod



S. N. Harrison